J. C. Smith,

Tuning Key,

No. 1,007, Patented Nov. 14, 1838.

Fig: 1.

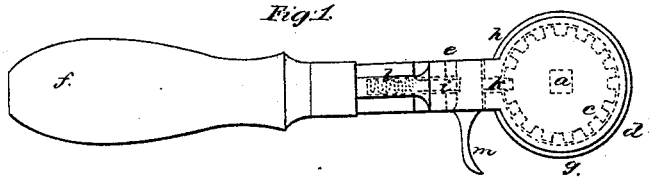


Fig: 3.

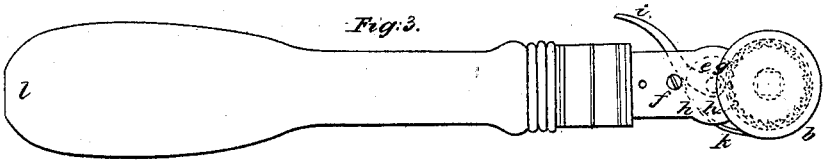


Fig: 4.

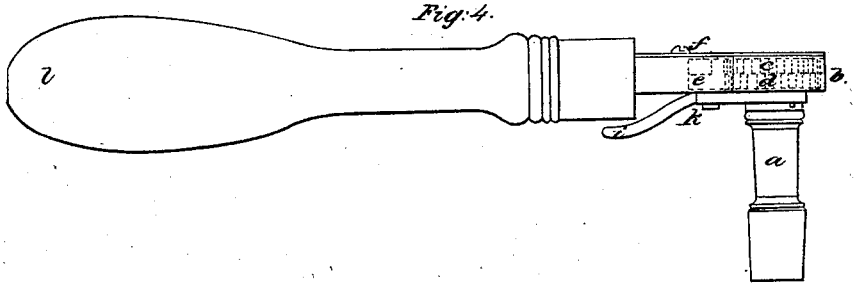
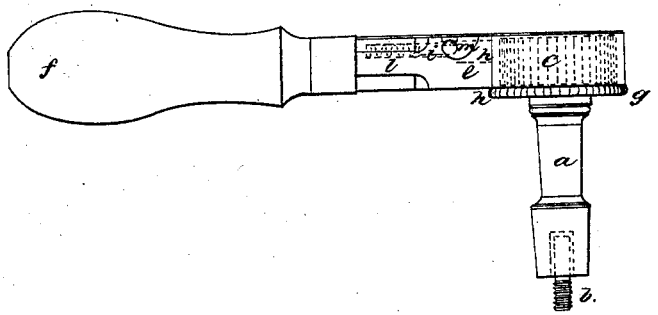


Fig: 2



UNITED STATES PATENT OFFICE.

JOHN CUTTS SMITH, OF BOSTON, MASSACHUSETTS.

KEY FOR TUNING PIANOFORTES.

Specification of Letters Patent No. 1,007, dated November 14, 1838.

To all whom it may concern:

Be it known that I, JOHN CUTTS SMITH, of Boston, county of Suffolk, State of Massachusetts, have invented new and useful Improvements in Keys or Instruments Generally Used for Tuning Pianofortes.

These improvements, the principles thereof, and the different modes in which I have contemplated the application of said principles, by which the same may be distinguished from other inventions—together with those parts, improvements or combinations I claim as my invention and hold to be original and new, I have hereinafter set forth and described, which description taken in connection with the accompanying drawings herein referred to, composes my specification.

The instrument in general use for tuning pianofortes has been a simple key to be fitted on the top or square part of the screws which strain the wires and having a handle fixed to the shank, at right angles, similar to a cork screw handle. As in order to give the wires their proper tension it often requires much strength exerted, the manner of application of such force has a tendency, often to bend or wrench the straining screw, from its natural position or otherwise injure it, and furthermore the exertion necessary to tune some instruments often deters females or other persons of delicate constitution and health from undertaking to accomplish the same. It will be observed that these and many other objections, which might be enumerated, are successfully obviated by my improved tuning key.

Figure 1 of the accompanying sheet of drawings represents a detailed section of one of my improvements and that which I consider superior to any others I may have invented. Fig. 2 is a side view of the above. Fig. 3 is a detailed section of the second of my improvements, while Fig. 4 represents a side elevation of the same.

a, Fig. 2, is the key which is formed with a rectangular socket in its end in the usual manner, to fit on the straining screw *b*. To the top of the key *a* a small gear or toothed wheel *c* Figs. 1, 2, is connected by a square head or in any other convenient manner. The gear or toothed wheel *c* is placed in a small circular box *d*, Figs. 1 and 2, which is attached to the extremity of a handle or lever *e*, *f*. The key *a* has also connected to it directly under the bottom of the box a milled head, *h*, *g*, Fig. 2. On applying the thumb to the surface or circumference of the milled head *h*, *g*, the key *a* may be turned around or in other words the gear *c* revolved in the box *d*, while the handle *e f* is held by the operator. By these means, while the apparatus is held in the hand the key can easily be turned in such a position as to receive the top of the straining screw into the rectangular socket on its lower end.

A cylindrical or other proper shaped piece of metal *i* Figs. 1, 2, slides in the inside of the shank *e* of the handle *f*. It has on one end a tooth *k*, and is pressed forward by a spring *l* acting against its opposite end as seen in the drawings. It also has a trigger-shaped projection *m* affixed to its side, over which projection the first finger of the hand of the operator is placed so that at any moment he can draw back the tooth *k* from between the teeth of the gear, and thus disengage the shank *e* of the handle *e f* from the key, so as to allow the handle to be moved around to any desirable position, with respect to the straining screw *b*.

Fig. 3 and 4 represent my second improvement. The key *a* Fig. 4 has attached to its top the box *b*, two ratchet or toothed wheels *c*, *d*, Fig 4 and *c*, Fig. 3. The teeth of these wheels are cut in opposite directions as denoted in Fig. 3 in which the lower ratchet wheel is drawn in red lines. *e* is a circular piece of metal laying and moving in a small box *f*. This piece *e* has two teeth or clicks *g*, *h*, the former of which operates in the teeth of the upper ratchet wheel *c* and the latter, in the lower ratchet wheel *d*. A small thumb lever *i*, is fitted in any proper manner on the axis of the movable piece of metal *e*, as seen in Fig. 4. A spring *k* operates in a suitable manner, to push outward, or in the position denoted in Fig. 3, the thumb lever, *i*, and thus causes the tooth, or pawl *g*, to remain always in contact with the teeth of the wheel *c*, while the thumb of the operator is removed from or does not press inward the thumb lever *i*.

While the tooth *g* is in contact with or between two consecutive teeth of the ratchet wheel *c*, the key is locked in such manner to the handle *l* that while the operator draws the same toward him, he tightens or strains up the wire. Then by pushing the handle

around again to its original position, the pawl or tooth *g* slips over the succeeding teeth until the handle is brought to its proper or former situation, when the spring *k* causes it to stop between two of the teeth, and again engage the handle and key, as the operator draws the handle toward him a second time. If it should be desirable at any moment to loosen the string, the operator has only to press inward the lever *i* so as to bring the lower pawl, *n*, in contact with the teeth of the lower ratchet wheel *d*. This will engage the handle and key, so that when the operator presses the former from him, the latter will act on and turn back the straining screw so as to loosen the string. Thus it will be seen by both of these inventions, that after the key is once fitted on the top of a straining screw it is not necessary to remove the same therefrom during the process of imparting to the wire its due degree of tension.

The proportions and size of the various parts may be as represented in the drawings, or they may be varied as convenience requires; and the whole constructed of iron or other suitable material or materials.

I shall claim as my invention—

The above tuning keys, constructed and operating in the manner herein set forth and described; and I also claim the application of a ratchet or toothed wheel or wheels to the top of the shank of the key, by which, in connection with other suitable machinery applied thereto, the handle may be engaged or disengaged, at pleasure, with the key, for the purpose of operating the same in manner above described.

In testimony that the above is a true description of my said invention and improvements, I have hereto set my hand and seal this sixth day of August in the year eighteen hundred and thirty-eight.

J. CUTTS SMITH. [L. S.]

Witnesses:
R. H. EDDY,
EZRA LINCOLN, Sr.