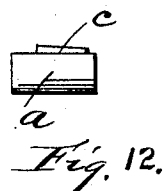
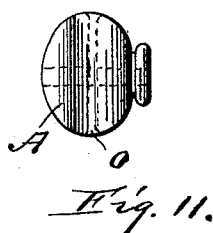
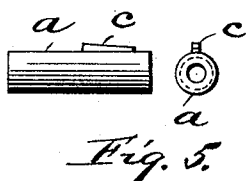
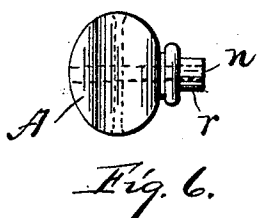
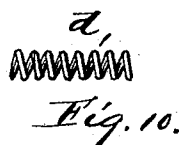
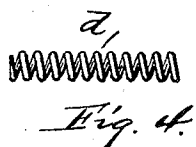
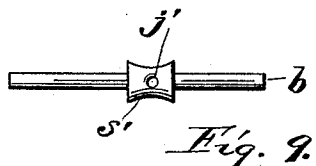
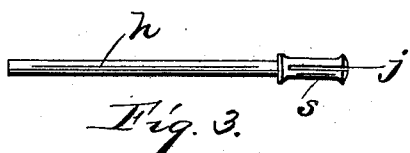
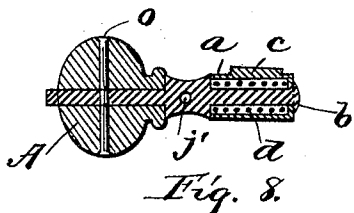
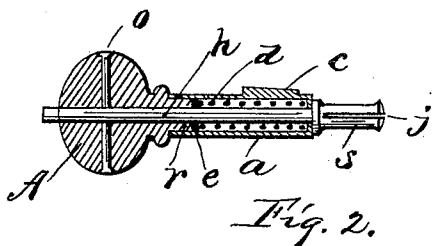
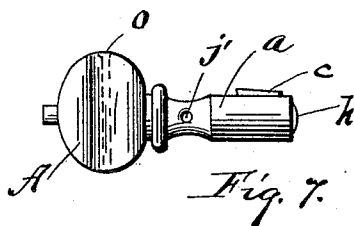
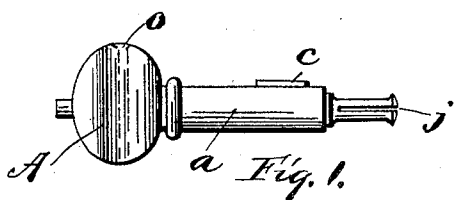


(No Model.)

A. McKENZIE.
TUNING KEY FOR MUSICAL INSTRUMENTS.

No. 528,013.

Patented Oct. 23, 1894.



Witnesses

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ANDREW MCKENZIE, OF PROVIDENCE, RHODE ISLAND.

TUNING-KEY FOR MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 528,013, dated October 23, 1894.

Application filed August 29, 1894. Serial No. 521,592. (No model.)

To all whom it may concern:

Be it known that I, ANDREW MCKENZIE, of Providence, in the county of Providence and State of Rhode Island, have invented certain
5 new and useful Improvements in Tuning-Keys for String Musical Instruments; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and
10 to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of tuning keys used in string musical instruments, and is especially designed for banjos, guitars
15 and the like instruments. Its construction is fully illustrated in the accompanying drawings.

Figure 1, represents one of the keys in elevation. Fig. 2, is a longitudinal section of the key taken through its middle, edgewise
20 of the handle. Figs. 3 to 6, represent the parts of the key in detail, as will be hereinafter described. Fig. 7, shows an elevation of the key, slightly modified, to apply to the short string of a banjo. Fig. 8, is a longitudinal section of the modification shown in
25 Fig. 7. Figs. 9 to 12, show the parts in detail, of the modified form of the key.

The object of the invention is to produce
30 a tuning key that will contain in itself the means for producing the friction necessary to resist the strain of the banjo's strings, and not depend on the wooden neck of the instrument for it, as is usually done, and thereby
35 avoid the trouble of keeping the instrument in tune, resulting from the shrinking and wearing away of the wood, allowing the keys to become loose and slip; and it also does away with the necessity of having a screw
40 driver or other like tool, handy to tighten up the key, as it always retains the same friction after once being put into the instrument.

The construction is as follows: A stem or spindle *h*, Fig. 3, is made to extend the whole
45 length of the key, consisting of a straight round bar, with a spool *s*, formed on one end to wind the string upon. A slot *j*, is cut in from the end of the spool, to fasten the string by, or a hole may be made through the spool,
50 instead of the slot for that purpose if preferred. A shell or tube *a*, Fig. 5, is made

with one end closed, excepting a hole in the center of the size of the straight part of the spindle *h*. On one side of the shell *a*, a spline or projecting ridge *c*, is made to prevent it from turning when inserted in the
55 neck of the banjo. An open spiral spring *d*, Fig. 4, is made of proper size to slide freely into the shell *a*, and having an inside diameter large enough to go easily onto the
60 straight part of the spindle *h*. The fourth piece of the key is the handle *A*, Fig. 6. It may be made of the same material and in the same form that the handles of tuning
65 keys are usually made, and has a hole *n*, made through it in the direction of its longest diameter, of proper size to receive the straight part of the spindle *h*, and another
70 small hole *o*, is made through it transversely, to receive a pin to secure it to the spindle, to cause the two to turn together. On one side of the handle *A*, it is turned down small enough to enter a short distance into the
75 shell, so as to turn freely in it.

The arrangement of the parts just described, when they are assembled together, is
80 most plainly shown in Fig. 2. The shell *a*, is first slid onto the small part of the spindle *h*, until its partly closed end is against the inner end of the spool *s*. Then the spring *d*, is slid onto the spindle *h* and into the shell *a*,
85 until its inner end rests against the partly closed end of the shell. The handle *A*, is then put on the spindle, with a small metallic washer *e*, at its front end to take the wear, if the handle itself is not made of metal.
90 Then, as the handle *A*, is put on the spindle, it compresses the spring *d*, until the handle is clear on and the pin *o*, inserted through it, and the spindle to hold it there. It will be
95 readily seen that the pressure of the compressed spring *d*, between the handle *A* and the partly closed inner end of the shell, will press that end against the inner shoulder of the spool *s*, and create the friction necessary to keep the spindle from being turned
100 by the strain of a string wound on the spool *s*, when the shell *a*, is held fast. This makes the key complete in itself, and all that is necessary is to press it into a hole in the neck of the banjo, and the ridge *c*, will prevent it from turning. Instead of the ridge *c*, the

shell may be roughened on its outside, with the same effect. The friction of the key will always be the same, and will not be affected by the dampness of the weather as where a wooden surface is depended upon, and under its equable action, the strings can be more easily and accurately tuned.

Figs. 7 to 11, show a modification of the key to adapt it to the short strings of the banjo, where there is no chance to insert a key from the back of the neck of the banjo. It consists in changing the spool *s*, from the end of the spindle *h*, to the middle and making a hole in it, that the key may be inserted into the front or side of the banjo neck, instead of the back, and have the handle and spool on the same side. The spool comes between the handle and the shell, and the end of the spindle is riveted over the end of the shell *a*. The friction is caused by the pressure of the spring between the shoulder of the spool and the inner end of the shell, pressing that end against the outside riveting.

Having thus described the construction

and operation of my improvements, I claim as my invention—

1. In a tuning key for string musical instruments, a spindle having a handle to turn it by and a spool to wind the string on, in combination with a shell to receive said spindle and be rigidly held in the instrument, and a spring to create a friction between the shell and spindle, substantially as described.

2. The combination in a tuning key for string musical instruments, of a shell to be inserted rigidly in the instrument, a spindle extending through said shell, and having a spool on its end with a shoulder to come in contact with the end of the shell, a spring to be inclosed in the shell, and a handle fast to the spindle to compress the spring against the inner partly closed end of the shell, substantially as described.

ANDREW MCKENZIE.

Witnesses:

BENJ. ARNOLD,
E. B. READ.