

(No Model.)

A. H. HASTINGS.

TUNING PIN FOR STRINGED MUSICAL INSTRUMENTS.

No. 582,203.

Patented May 11, 1897.

Fig. 1.

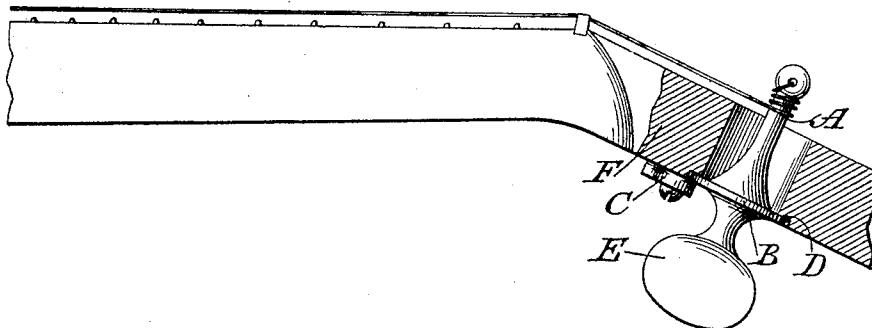


Fig. 2.

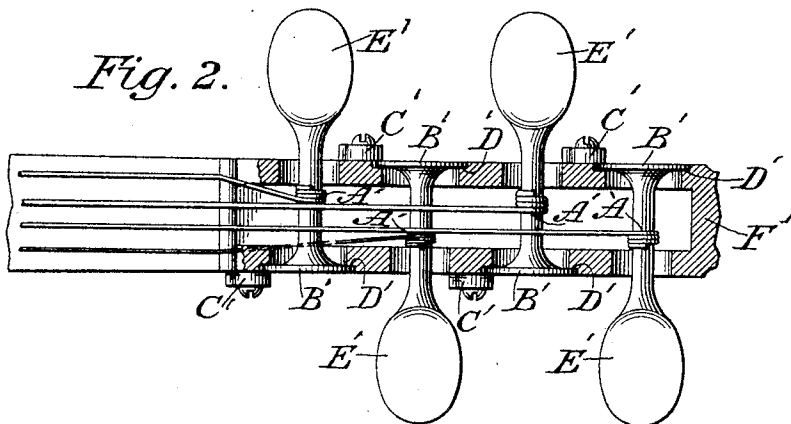


Fig. 3.

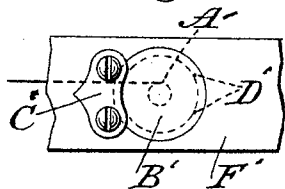


Fig. 4.

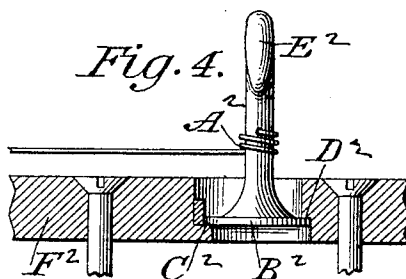
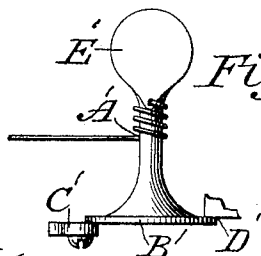


Fig. 5.



Witnesses:

A. N. Geisler
E. M. Shuster

Inventor:

Mariah Horace Hastings

UNITED STATES PATENT OFFICE.

AZARIAH HORACE HASTINGS, OF NEW YORK, N. Y.

TUNING-PIN FOR STRINGED MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 582,203, dated May 11, 1897.

Application filed June 13, 1895. Serial No. 552,740. (No model.)

To all whom it may concern:

Be it known that I, AZARIAH HORACE HASTINGS, a citizen of the United States, and a resident of New York city, county and State of New York, have invented a new and useful Improvement in Tuning-Pins for Stringed Musical Instruments, of which the following is a specification.

This invention relates to improvements in tuning pins, pegs, or keys for stringed musical instruments, and has for its object the application of a leverage pressure through the employment of a disk for the sustaining of the string tension, (instead of depending on friction or screw power, which are defective in turning, causing much annoyance.) I wish to provide a tuning-pin which turns the same under all conditions and the staying power of which will increase as the tension of the string increases; a device that can be applied directly to a wood frame, such as a violin or guitar head and similar instruments of light strain, for which it is particularly adapted, but may be used to advantage in pianos; a device that is inexpensive and easily applied to the varied forms and conditions of stringed musical instruments.

To this end my invention consists in the details of construction and combination of parts, all as hereinafter more particularly pointed out and claimed.

The accompanying drawings illustrate my invention, in the several figures of which like parts are designated by like letters.

Figure 1 is a side view of the stock of an instrument of the guitar class with the head cut away, the pin and key or thumb-piece and its disk exposed to view. Fig. 2 is a front view of my invention as applied to the usual construction of a violin-head with the front cut away to show the pins and the four strings attached to their relative pins. Fig. 3 is a plan view of the disk and fulcrum-block of a pin attached to its relative parts. Fig. 4 represents a modification of my invention adapted to pianos, harps, citherns, and similar instruments to be adjusted by a detachable key. Fig. 5 shows a tuning-pin without the frame with its disk showing the strain-point of string and leverage-points of disk pressure.

In the drawings, A represents the tuning-pin at the point of strain by the string, which

is a leverage power and is placed from three-eighths to five-eighths of an inch away from the disk pressure.

B is the disk, securely attached or in one piece with the pin.

C is the fulcrum, which may be secured by a screw block or plate to cover one or more disks, or other means may be used that will sustain the leverage pressure at the fulcrum.

D is the point of weight pressure, having one or more bearings.

E is the key or thumb-piece, which may be applied at either end of the pin, or the pin may be made square to be turned by a detachable key, as shown in Fig. 4. The disk of this tuning-pin is to be loosely fitted into the frame F of the instrument, so there is no friction or pressure until the tension strain is applied by rotating the disk integral with the tuning-pin. It will be observed that when the strain is applied at the point A the pressure at the points C and D is sufficient to sustain the pin at rest in any position in which it may be left, and it will be seen that as the strain of the string is increased the pressure at the points C and D will keep in pace with it. Therefore no slipping or jumping will be felt at any tension until the string breaks that returns the pin to its former looseness by the leverage pressure being released. As this pin is sustained by a leverage pressure and a very slight friction under said pressure, it will not be affected by climatic changes and will always work the same under all conditions, and different pins will turn one and all alike under the same string tension and will stand the same when turned right or left.

It is evident that the larger the outer circle of the disk in proportion to the size of the pin the less leverage pressure and less friction is had and less is needed with a given string strain to sustain the string. Therefore a size of disk can be selected according to any desired condition of pin or key turning. As this leverage pressure is according to natural laws, it is always ready to act the same in all climatic conditions without pinching, and there can be no slipping back, but is always submissive to the key without loss of string tension. A very little friction is required for it to turn and stand firmly, as its staying power depends on its leverage pres-

sure. It has been demonstrated by acoustic experiments that a musical string vibrates most freely when strained to its pitch by somewhat of an elastic support instead of one that is solidly and stubbornly fixed. Therefore my invention operates in a direction to improve the tone, particularly in the violin class, by the leverage of the pin and disk producing an elastic support. I am aware that short and straight tuning-pins are in use arranged to have extra leverage similar to ordinary piano tuning-pins arranged in a hole in a metallic frame rabbeted or dovetailed to give a strong friction to sustain the string tension. Such a device depends more on friction than leverage pressure and cannot be used directly upon wood frames. I do not claim such a combination or levers regulating the string tension by means of screws or pins screwed into a metal plate; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The combination in a tuning device for stringed musical instruments of the tuning-pin A, the disk B, solidly attached or in one piece, the bearings C, and D, at the outer circle of the disk all arranged to operate substantially as shown and described.
2. In a tuning device for stringed musical instruments the disk B, frame F, tuning-pin

A, in combination with the bearings C and D, adapted to adjust the string tension by rotating the disk which is integral with the tuning-pin substantially as set forth.

3. The combination in a tuning device for stringed musical instruments of the pressure-bearings C, and D, the disk B, the frame F, the tuning-pin A, arranged to adjust and sustain the string-tension without the employment of adjustment-screws, as set forth.

4. In a tuning device for stringed musical instruments the frame F, the leverage-bearings C, and D, the disk B, the tuning-pin A, arranged to be adjusted either by a key or thumb-piece all in combination as shown and described.

5. The combination with the head of a stringed musical instrument having an enlarged opening, of a tuning-pin passing loosely through the opening and having a disk thereon arranged to engage by its edge bearings on the head of the instrument substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 10th day of June, 1895.

AZARIAH HORACE HASTINGS.

Witnesses:

W. F. REYNOLDS,
A. T. TIMPSON.