No. 649,964. Patented May 22, 1900.

J. C. ST. JOHN.

PICK KEY FOR STRINGED INSTRUMENTS.

(Application filed June 13, 1899.)

(No Model.)

Fig. 1.

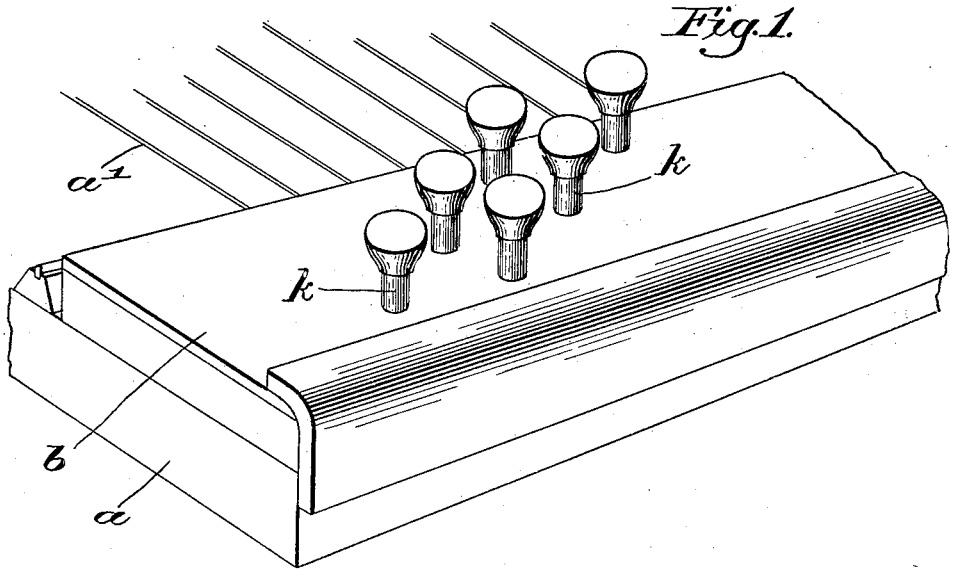


Fig. 2.

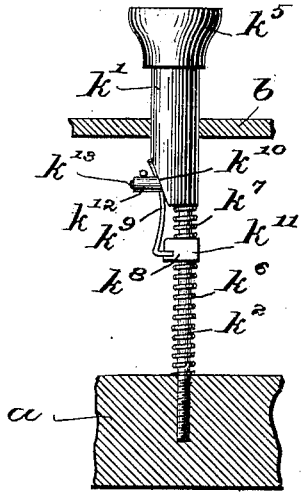


Fig. 3.

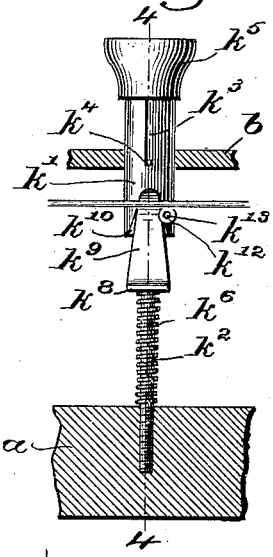


Fig. 4.

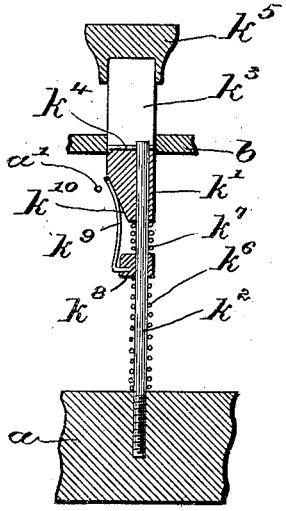


Fig. 5.

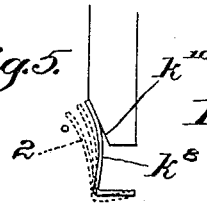
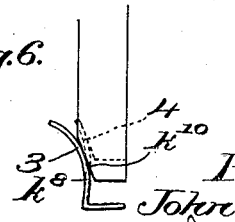


Fig. 6.



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UNITED STATES PATENT OFFICE.

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PICK-KEY FOR STRINGED INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 649,964, dated May 22, 1900.

Application filed June 13, 1899. Serial No. 720,352. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. ST. JOHN, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Pick-Keys for Stringed Instruments, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention is a pick-key attachment for stringed instruments, being particularly adapted for citherns and similar instruments.

Usually instruments of the kind referred to are picked by the fingers or by an instrument carried by the fingers; but I have found that greatly-increased variety and beauty may be given to these instruments by providing them, in addition to their usual construction, with means whereby the keys may be separately played or picked by keys operated in a keyway, somewhat as in a piano; and accordingly my present invention consists of a peculiar key whereby the strings may be picked without any metallic discordant sound and the vibration thereof controlled, my key also being so constructed that no false picks can take place on the return movements thereof.

In carrying out my invention I provide a key preferably of the plunger type and arrange thereon a pick device which automatically projects into the path of the string as the key descends and then having picked the string returns out of the path of the string as the key rises, the key also preferably carrying an automatic damper, which damps the vibrations of the string as soon as the key reaches its normal raised position and prevents all jar and noise of the key upon its return.

The details of my invention will appear more fully in the course of the following description, reference being had to the accompanying drawings, illustrative of a preferred form of my invention, and the latter will be more particularly defined in the appended claims.

In the drawings, Figure 1 is a perspective view of a fragmentary portion of a cithern constructed with a keyboard provided with my special pick-key. Figs. 2 and 3 show the key respectively in end elevation and in side elevation in raised position. Fig. 4 is a vertical longitudinal section of the key, taken on the line 4 4, Fig. 3. Figs. 5 and 6 are diagrammatic views, slightly exaggerated, showing the various positions assumed in the movement of the key.

The base a and strings a' may be of any desired construction suitable for the particular kind of instrument. Conveniently supported at the end of the musical instrument, preferably in a keyboard b, are the desired number of pick-keys, there being, if desired, a key for each string. These keys are herein shown as slidingly mounted in the keyboard at their upper ends and permanently secured at their lower ends in the base a.

Referring now to Figs. 2 to 4, wherein the detailed construction of the key is shown, it will be seen that the key comprises a body portion or plunger k' and a post k^2, the plunger or movable part of the key being slitted at its upper end at k^3 to receive a transverse pin k^4, extending through the post for the purpose of preventing relative axial rotation, and the plunger being provided at its upper end for convenience with a thumb-piece k^5, by which it may be depressed. On the post k^2 I mount a lower spring k^6 and an upper spring k^7, between which slides on the post a perforated ear k^8 of a pick device k^9. The upper end of the pick is outwardly curved, as clearly shown in Figs. 2 and 4, and rests at its free end against a beveled portion k^{10} of the plunger k', the said beveled portion of the plunger and said vertical part k^9 of the pick being parallel to the adjacent string a'. The result of this construction is that when the plunger is depressed the first movement thereof wedges the free end of the upright k^9 outwardly slightly and thereby instantly causes the portion k^8 of the pick to bind on the post k^2, said portion k^8 preferably having an enlargement or considerable thickness, as indicated at k^{11}, so as to give larger frictional bearing. This initial movement having taken place, as stated, and the plunger having descended as much as the depression of the spring k^7 will permit, the free end of the pick is thereby

projected into alinement with the string a', so that further downward movement of the plunger depresses the pick into engagement with the string and picks the latter as desired, this downward movement being effected against the resiliency of the spring k^6, and when the plunger is allowed to lift these operations are reversed, as will presently be described.

At one side of the plunger and in a position to normally engage the under side of the adjacent string is a damper k^{12} to deaden and stop the vibrations of the string, which may have just been struck or picked, this damper being composed of a pin k^{13}, covered with a suitable substance, such as rubber or felt. Besides performing its function as a damper the device k^{12} also serves in connection with the pin k^4 to limit the upward movement of the plunger and maintain the parts in their proper operative position, a further very important purpose of the damper being to prevent the key from making any noise when it returns suddenly.

I desire at this point to make it clearly understood that while I have described my invention in all of the details shown yet I am aware that very many substitutions may be made without departing in any true sense from my invention. For example, various other devices may be used for limiting the upward movement of the plunger, and the peculiar in-and-out movement of the free end of the pick may be accomplished in various ways other than that shown, and also while I prefer to use a light spring k^7 and a heavier spring k^6 this is not essential, nor is it essential that one should be greater than the other, and while the plunger is shown as sliding over the post k^2 any other means for securing the desired relative movement may be used.

The operation of my pick-key is as follows: When the plunger is first depressed, the initial movement, as already explained, throws out the free end of the pick sufficiently to prevent its readily slipping on the post k^2, so that the spring k^7 is entirely compressed, thereby permitting the full action of the cam-surface k^{10} to act on the pick end k^9 before the pick is lowered or forced down on the post k^2, the result being that the cam-surface k^{10} projects the pick into the position 2, Fig. 5, with the free end thereof overhanging the string in position to pick the same with the required force. The parts being in this position, further depression of the plunger serves to push the pick forcibly down into the position 3, Fig. 6, thereby picking the string and at the same time carrying the pick out of engagement therewith. Having picked the string, as stated, the operator thereupon releases his finger from the key and the initial upward movement thereof causes the cam-face k^{10} of the plunger to slide up on the pick, due to the action of the spring k^7, so that the parts assume the relative position 4, Fig. 6, and thereupon both springs coöperate in maintaining the parts in said position, while at the same time raising both the plunger and pick into their original position until the plunger is stopped and the damper k^3 engages the string, so as to stop its vibration. In this kind of instrument it is requisite that there should be no rattling or jarring of parts, inasmuch as the music is of such a delicate character that any such foreign sounds would be extremely objectionable, and it will be observed that the parts of my pick-key, as above described, are at all times in such relative positions that no rattling can occur, and also the damper operated, as stated, to prevent any noise which might occur by the sudden rising. Also the construction and operation are exceedingly simple when properly understood, and the picking of the string and stopping of the vibrations thereof are instantaneous and both under the complete control of the operator, while at the same time there is no possibility of catching the string and picking it on the upward or return movement of the key.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a stringed instrument of the character described, of a pick-key mounted in said instrument, said pick-key comprising a stationary part and a movable part, and a pick in the form of a spring, one of said parts serving to retain and guide said pick, and the other of said parts serving to actuate said pick, the pick being sprung in and out by the movement of said movable part, substantially as described.

2. A pick-key for musical instruments, comprising a perforated plunger, a post extending therein, a pick sliding on said post, a cam-surface on said plunger coöperating with said pick to move the same in and out as required, and yielding means controlling the position of said pick on said post, substantially as described.

3. A pick-key for a musical instrument comprising a stationary part, a plunger movable relatively thereto, a pick, automatic means coöperating with the movement of said plunger for throwing said pick into operative and inoperative position as required, and a damper carried by said plunger and projecting into the path of the string, substantially as described.

4. A pick-key for a musical instrument comprising a plunger, a pick, a post to guide said pick, and springs for controlling the movement of the pick, said plunger having an inclined face or cam-surface on which the free end of said pick bears, and a damper at the side of said pick in position to engage the string when the plunger is in normal position, substantially as described.

5. A pick-key for a musical instrument comprising a plunger, a pick, a post to guide

said pick, and springs on said post, one above and one below said pick, for controlling the movement of the pick, said plunger having an inclined face or cam-surface on which the free end of said pick bears, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN C. ST. JOHN.

Witnesses:
GEO. H. MAXWELL,
FREDERICK L. EMERY.