

(No Model.)

2 Sheets—Sheet 1.

H. G. A. SMITH.
PICK FOR STRINGED INSTRUMENTS.

No. 479,672.

Patented July 26, 1892.

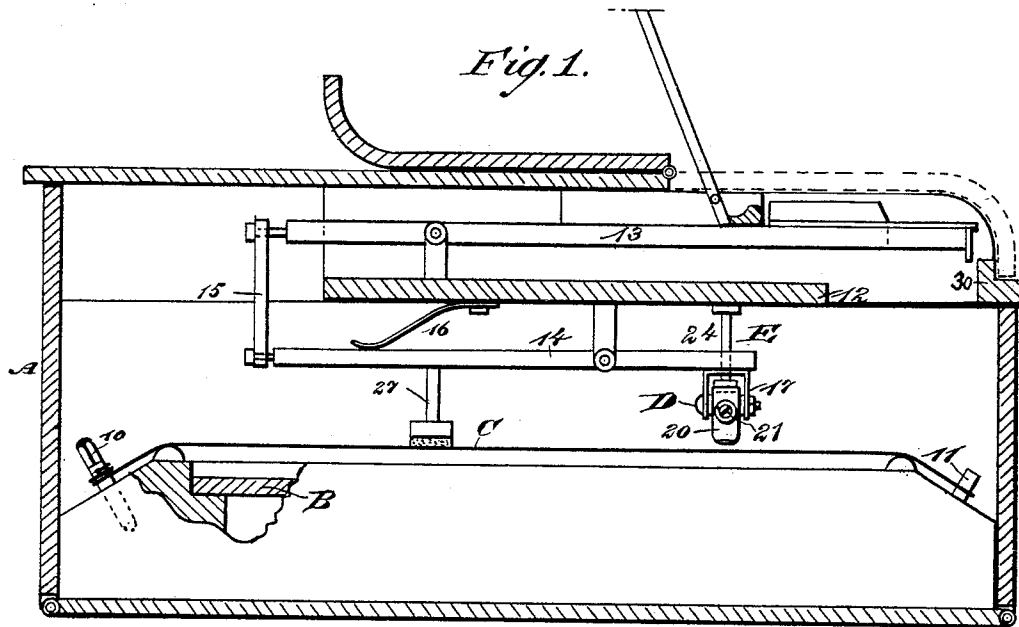


Fig. 2.

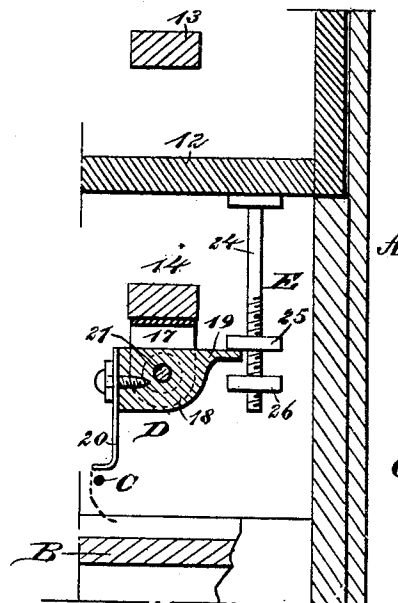


Fig. 4.

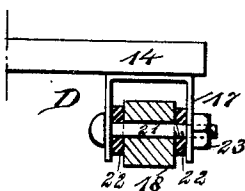
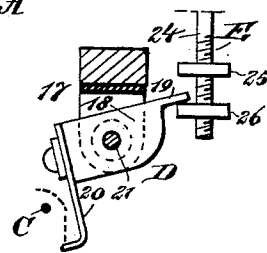


Fig. 3.



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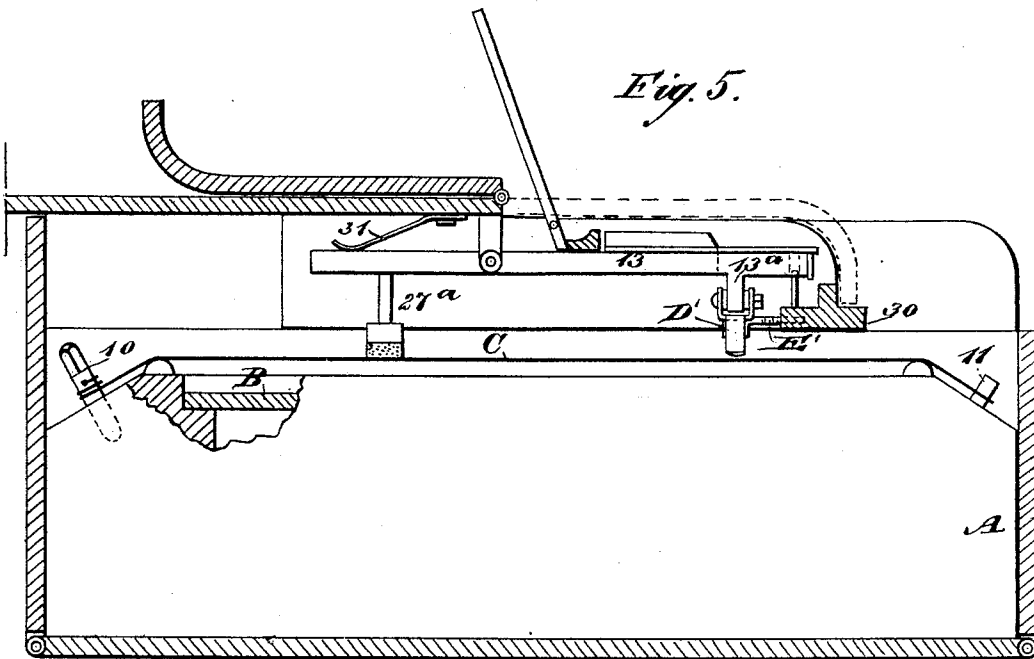


Fig. 6

Fig. 8

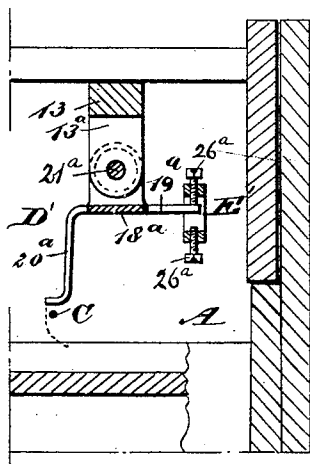
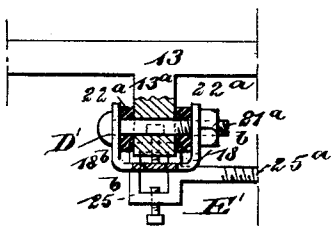
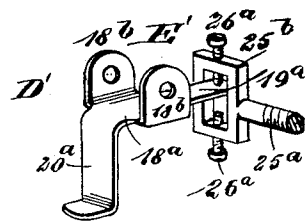


Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY G. A. SMITH, OF BUFFALO, NEW YORK.

PICK FOR STRINGED INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 479,672, dated July 26, 1892.

Application filed December 22, 1891. Serial No. 415,850. (No model.)

To all whom it may concern:

Be it known that I, HENRY GEORGE AUGUSTUS SMITH, of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Picks for Stringed Instruments, of which the following is a full, clear, and exact description.

My invention relates to an improvement in picks for stringed instruments, and has for its object to provide a novel and automatic device for causing the strings to vibrate in such a manner, that in conjunction with a sounding-board or sounding-boards and the ordinary arrangement for varying the length, thickness, and tension of the strings, will give the different notes of the scale in a clear and musical manner; and a further object of the invention is in connection with the pick to provide a new class of musical instruments, varying in size and quality from a toy upward, according to the number of strings employed and the size and style of the instrument generally.

It is a further object of the invention to provide a means whereby a pick may be operated through the medium of keys—as, for instance, such keys as are employed upon a piano or organ.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal vertical section through an instrument, illustrating one form of the improved pick applied thereto. Fig. 2 is a vertical section taken through a portion of the instrument and through a portion of the pick, illustrating the pick in its normal position. Fig. 3 is a sectional view through the lever carrying the pick, the pick being in side elevation and illustrated in its lowermost position and in connection with a trip mechanism. Fig. 4 is a sectional view through the body of the pick, showing a portion of the lever carrying the same in side elevation. Fig. 5 is a longitudinal vertical section through an instrument, illustrating a

modification in the form of the pick and its application directly to a key. Fig. 6 is a vertical section taken through a portion of the instrument and through a portion of the pick, illustrating the pick in its normal position. Fig. 7 is a detail perspective view of the modified form of pick and the trip mechanism employed in connection therewith; and Fig. 8 is a sectional view through the body portion of the pick, illustrating the manner in which it is pivoted to a key.

The body of the instrument A may be of any approved shape, and in the lower portion of the instrument one or more sounding-boards B are located at suitable distances apart. Above the upper sounding-board, over bridges, strings C are stretched, being attached at one end to tuning-pins 10 and at the opposite ends to hitch-pins 11. Above the strings—that is, between the strings and the top of the casing—a board 12 is attached to the sides of the casing, is horizontally located, and virtually constitutes a partition. This board is of much less length than the length of the casing, so that a space intervenes between the board and the front and rear of the casing.

One manner of constructing the action of the instrument is as follows: Upon the upper surface of the board—near its rear end, for instance—a series of keys 13 is fulcrumed, which keys are preferably made to simulate those employed upon a piano or organ. Levers 14 are fulcrumed beneath the board or partition 12, and the levers are connected with the keys through the medium of connecting-rods 15 of any suitable or approved construction. A lever is provided for each key, and the levers 14 are held in a horizontal position, which is their normal position, and the keys 13 likewise through the medium of springs 16, attached to the partition 12 and having a bearing upon the levers, as shown in Fig. 1. Each lever is provided with a pick D. The picks are located at the shorter ends of the levers, and are of like construction.

In that form of the action illustrated in Figs. 1, 2, 3, and 4, upon each lever, longitudinally thereof, a spring-frame 17 is secured, the said frame being practically U-shaped and constructed of spring metal. Between the members of this frame the body 18 of the

pick is located or pivoted. The body of the pick may be of any suitable or approved material and extends transversely beneath the lever with which it is connected, the rear end of the body being provided with a lip 19, as shown in Figs. 2 and 3. The front of the body has a finger 20, made usually of a material possessing a certain degree of elasticity, projected downward from the body, the said finger being forwardly curved at its lower end. The finger may constitute an integral portion of the body or may be attached thereto, as shown in the drawings.

The manner of pivoting the body of the pick between the members of the frame or yoke 17 is through the medium of a pin 21, passed through said members and through the body of the pick and also through elastic washers or blocks 22, one of which is located at each side of the body of the pick between it and the members of the frame or yoke, as is best shown in Fig. 4. One end of the pin 21 is threaded and provided with a nut 23, whereby any desired amount of tension may be exerted upon the portion of the pick located between the members of the yoke, and a certain amount of tension is necessary, as it is not desired that the pick should turn upon its pivot-pin, except at predetermined periods. To that end a trip mechanism E is employed in connection with each pick. The form of this trip mechanism may be varied. That shown as used in connection with the pick above described consists, preferably, of a threaded pin 24, the upper end of which is secured to the partition 12, one of said pins being located at the rear of each pick-body, and upon each pin 24 two nuts 25 and 26 are located at predetermined intervals apart, and the pins and nuts bear such relation to the body of the picks that the lips 19 of the latter are located between the nuts.

A pick D is located over each string or adjacent thereto, and when a key is pressed downward the lever 14, connected with that key, is pressed downward also at the end carrying the pick, and the pick moves vertically downward until its finger strikes the string at its curved end and continues to move downward, carrying the string with it, until its lip 19 engages with the lower nut 26, whereupon, as the lever is still carried downward, the body of the pick, assisted by the elasticity of its finger, is forced to assume the inclined position shown in Fig. 3, and as this inclined position of the body of the pick is assumed its elastic finger slides over the string, releasing said string and permitting the latter to vibrate. The path of the downward movement of the pick is illustrated by dotted lines in Fig. 2.

In Fig. 3 the pick is illustrated in its lowermost position. The finger of the operator being removed from the key the spring 16 acts to force the pick D upward and likewise the key, restoring them to their normal position, and the path of the upward movement of the pick is illustrated in dotted lines, Fig. 3.

The finger of the pick moves vertically upward away from the string until it is at a point slightly above the string, at which time the lip of the pick will strike the upper nut 25 of the trip mechanism and the body of the pick will be restored to the horizontal position shown in Fig. 2, which is its normal position, and the finger of the pick will be carried over the string ready to be brought into action again. The sounding board or boards, however, and the arrangement of the strings thereon may be as desired.

I desire it to be distinctly understood that I do not confine myself to the shape or construction of the pick above described or to the construction of the trip mechanism heretofore explained in connection with it, and that in connection with each lever a mute may be employed, which, when the lever is restored to its normal position, will engage with the string beneath the lever and silence such string.

A very simple form of pick D' is illustrated in detail in Fig. 7. This is constructed of one piece of material, and may be made of metal, celluloid, or the equivalents thereof, the material being bent to form a body portion 18^a, ears 18^b, extending upward from each side of the body portion, a rearwardly-extending horizontal lip 19^a, and a downwardly-extending finger 20^a, the finger and the lip being essentially the same as those described in connection with the pick shown in Fig. 3. In the said Fig. 7 a modified form of trip mechanism E' is also illustrated. This trip mechanism consists of a shank 25^a and a body 25^b, the body being in link or loop form standing at a right angle to its shank, and the body portion at top and bottom may be provided with adjusting-screws 26^a, extending inward. The lip of the pick passes through the opening in the body of the trip mechanism and is normally located therein, the finger being inclined to and from the string by the lip being brought in engagement with the top and bottom of the body of the trip mechanism or in engagement with the upper and lower adjusting-screws 26^a. These adjusting-screws when employed are adapted to compensate for any wear that may take place at the extremity of the finger 20^a—as, for instance, should the finger at its lower end become worn off, by carrying the upper adjusting-screw downward that portion of the finger will be forced upward to assume the position it occupied when the pick was new.

In Fig. 5 I have illustrated the application of the picks directly to the keys 13, in which event the keys in their forward ends upon their under faces are each provided with a downwardly-extending stud 13^a, and to these studs the picks are secured transversely of the keys. The attachment is effected by passing a suitable bolt 21^a through apertures in the ears 18^b in the body of the picks and through openings in the studs of the keys, as is best shown in Fig. 8, the bolt being provided

with a suitable nut, and elastic washers 22^a are placed between the sides of the studs 13^a and the ears of the picks, the bolts 21^a passing through said washers. By this means tension is exerted upon the picks for the purpose heretofore set forth.

When the picks are attached directly to the keys the trip mechanisms are secured to the key-slip 30 or to a block attached to the forward portion of the casing. The trip mechanism of each pick is horizontally located and stands at a right angle to the pick.

The keys 13, when the picks are attached directly thereto, are fulcrumed in any suitable or approved manner upon the under side of the top of the casing, and are held normally in a horizontal position by any suitable form of spring 31, and each key may, if desired, be provided with any approved form of mute 27^a.

It is sometimes very desirable that the action be made to slide over the strings in such a manner that the picks may be brought to bear upon the strings near their centers or near their ends in order to produce different qualities of tones. This action effect may be accomplished by constructing that portion of the casing to which the action is secured or in which the action is located in such a manner that it may be slid to and from the player in the direction of the front or of the rear of the instrument upon suitable slides formed in the main body of the casing.

In Figs. 1 and 5 this construction is illustrated, in which it will be observed that the casing comprises an outer body or shell and an upper section capable of sliding movement upon the shell. The action of the picks upon the strings when the former are attached directly to the keys is the same as when they are attached to levers connected with the keys.

It will be observed that when an instrument is constructed as above described the strings may be picked in like manner as when the hand is used by simply playing upon keys as in a piano. By this means such music as is produced by a zither, banjo, guitar, or other stringed instruments may be obtained and any person familiar with the key-

board of a piano be enabled to readily perform upon the instrument.

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

1. In a stringed instrument, the combination, with a key, of a pivoted pick connected to the key and provided with means for holding it in the position to which it has been moved, and a trip mechanism engaging the pick in its upward and downward movements, whereby provision is made for swinging the pick into an inclined position to cause it to slide over and release the string and to restore it to its normal position after it has risen above the string, substantially as described.

2. The combination, with a string stretched to vibrate and a key or lever located adjacent to the string, of a pick pivotally attached to the key or lever, a trip mechanism operating in conjunction with the pick, and a tension device applied to the pick and adapted to hold the pick in a predetermined position during its upward and downward stroke until the trip mechanism restores the pick to its normal position for the next stroke, as and for the purpose set forth.

3. In a stringed instrument, the combination, with a key, of a pivoted and frictionally-held pick connected with the key and provided with a spring-finger and a lip and a trip mechanism engaging the lip of the pick to swing it on its pivot, substantially as herein shown and described.

4. In a stringed instrument, the combination, with a key, of a pivoted pick connected with the key and provided with a spring-finger and a lip, a trip mechanism comprising abutments or stops, between which the lip of the pick projects, and means for holding the pick from turning on its pivot only when engaged by the trip mechanism, substantially as herein shown and described.

HENRY G. A. SMITH.

Witnesses:

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JOHN L. SCHWARTZ,
EDWARD A. DIEBOLT.