

No. 674,875.

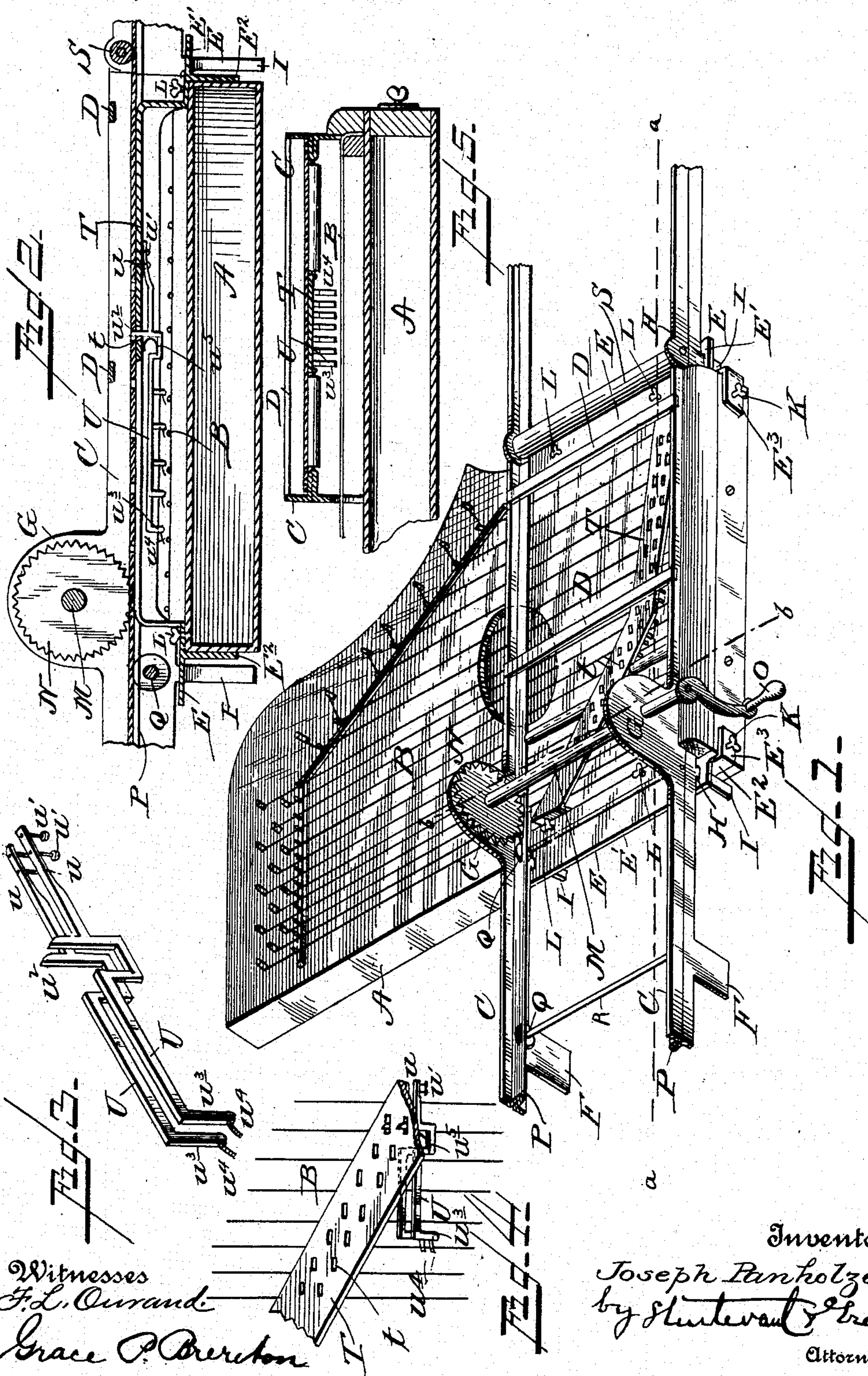
Patented May 28, 1901.

J. PANHOLZER.

SELF PLAYING STRINGED MUSICAL INSTRUMENT.

(Application filed Feb. 15, 1901.)

(No Model.)



Witnesses  
F. L. Curran  
Grace P. Curran

Inventor.  
Joseph Panholzer.  
by Sturtevant & Greley  
Attorneys



# UNITED STATES PATENT OFFICE.

JOSEPH PANHOLZER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR  
OF ONE-HALF TO FABIYAN AUGUSTIN, OF SAME PLACE.

## SELF-PLAYING STRINGED MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 674,875, dated May 28, 1901.

Application filed February 15, 1901. Serial No. 47,500. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH PANHOLZER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Self-Playing Stringed Musical Instruments, of which the following is a description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to improvements in mechanical musical instruments in which the strings are picked or struck by devices the operation of which is controlled by a plate or strip of perforated material.

It is the object of my invention to produce a device adapted to be attached to a stringed instrument of ordinary construction by means of which the instrument may be played mechanically as desired without change in the construction of such instrument; and my invention consists in the construction hereinafter described and claimed by which this object is attained.

In the drawings, Figure 1 is a perspective view showing my invention applied to a cithern of ordinary construction. Fig. 2 is a sectional view on line *a a* of Fig. 1. Fig. 3 is a detail view showing a pair of the picker-levers. Fig. 4 is a detail view of a portion of the bar which carries the picker-levers, showing a pair of these levers in position; and Fig. 5 is a sectional view on line *b b* of Fig. 1.

In the drawings, A represents a stringed musical instrument—in this case a cithern—of ordinary construction, having the strings B B, with my improved mechanical playing device applied to it. This device comprises side strips C C, held rigidly apart by upper cross-bars D D and under cross-bars E E. The side strips may be cheaply constructed by cutting them from sheet metal, and they are provided with legs F F and upwardly-projecting ears G, preferably formed integrally with them. The legs F F serve to support the weight of the device independent of the instrument.

The under cross-bars E E are preferably formed of strips of sheet metal bent at a right angle, having the upper horizontal portion E' and the vertical portion E<sup>2</sup>. In the hori-

zontal portion E' are formed holes H H, in which are received the vertical pins I I, extending downward from and preferably formed integrally with the side strips C C. By means of these pins the cross-bars and side strips are held rigidly in position. The vertical portions E<sup>2</sup> of these cross-bars are adapted to fit against the sides of the instrument, and their ends E<sup>3</sup> are bent at right angles to fit around the corners of the instrument and carry set-screws K, adapted to be screwed into the body of the instrument. The horizontal portion E' of these cross-bars extends a short distance over the edge of the instrument and is provided with set-screws L, adapted to be screwed into the upper edge of the instrument. By means of these set-screws K K and L L the device may be firmly secured to the cithern or other instrument.

In the ears G is journaled a shaft M, having preferably at each end a toothed wheel N, adapted to engage perforations formed in the edges of the perforated music-sheet to feed it forward. The shaft is provided with a crank O, by which it may be rotated to feed the perforated music-sheet.

The perforated music-sheet is supported in its passage through the device by a ledge P, formed in any convenient manner on or secured to the inner faces of the side strips C. This ledge is preferably formed, as shown, by a fold of the sheet metal. At intervals along this ledge are arranged rollers Q, which serve to lessen friction. These rollers are mounted on shafts R, which are supported by the side strips C. The rollers may extend from one side strip to the other or may be merely wheels arranged to support the edges only of the perforated music-sheet. In the portion of the device immediately over the strings these rollers Q extend from one of the side strips to the edge of the picker-supporting bar, hereinafter described, as shown. As many of these rollers as may be found desirable may be used.

At the side of the instrument opposite to that at which the feed-wheels N are located I have shown a roller S, journaled in the side strips C and adapted to bear upon the upper surface of the perforated music-sheet to prevent it from springing up. I have shown but



one of these upper rollers; but it will be understood that two or more may be used.

Across the device in a generally diagonal direction and supported at its ends by the cross-bars E E is arranged the picker-supporting bar T. This picker-supporting bar for the portion of its length which is immediately over the treble strings of the cithern, which are spaced wide apart, is at a comparatively small angle with the side strips, and for the portion of its length immediately over the bass-strings, which are comparatively close together, is arranged at a much greater angle with the side strips.

To the under side of the picker-supporting bar are secured the picker-levers U. These picker-levers are preferably of the form shown in Fig. 3, having the thin flexible elastic inner ends  $u$ , through which pass screws  $u'$ , securing them to the picker-supporting bar, having the upright portions  $u^2$  beveled at their upper ends and adapted to project through perforations  $t$  in the picker-supporting bar. Their forward ends are bent downward, as shown at  $u^3$ , and carry at their ends pickers consisting of flexible wires or other flexible devices  $u^4$  for picking the strings of the cithern or other instrument. Near the upright portions  $u^2$  the picker-levers are bent downward to form a recess for the reception of a spring  $u^5$ , which aids in forcing the picker-lever upward. The picker-levers are preferably arranged in pairs, one of them being provided with a flexible wire for picking the string and the other provided with a device of leather or like material by which a softer tone may be produced.

In operation the device being placed in position and secured to the cithern or other instrument, a perforated music-sheet, preferably of metal, is introduced and its edge perforations brought into engagement with the toothed wheels N. As the crank O is turned the sheet will be fed forward, and as the perforations in the sheet come above certain of the upright portions  $u^2$  of the picker-levers the picker-levers will be forced upward by the resiliency of their thin flexible ends  $u$ , aided by the springs  $u^5$ , and will immediately be again forced downward by the contact of the edge of the perforations. The pickers in the outer ends of the picker-levers will thus be drawn across the strings, first in an upward and then in a downward direction, causing the strings to vibrate. If the picker-lever thus operated carries a wire in its end, the string will be given a sharp vibration, producing a brilliant tone. If the picker operated carries a strip of leather or other soft material, the tone produced will be soft.

It will be understood that my device may be readily adapted for use in connection with other instruments than the cithern, and it will also be understood that I do not desire to be limited to the precise construction shown, as many changes may be made in the construction of the device without departing from my

invention. It will also be understood that instead of using a perforated music-sheet a sheet having projections may be used.

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

1. In a mechanical-playing stringed instrument, the combination of a picker-lever having its outer end vertically movable between the strings and carrying a flexible picker rigidly secured thereto, and means for moving the picker-bar; substantially as described.

2. In a mechanical-playing stringed instrument, the combination of a picker-lever having its outer end vertically movable between the strings and carrying a flexible picker rigidly secured thereto, and means for depressing the picker-lever and means for returning it to initial position; substantially as described.

3. In a mechanical-playing stringed instrument, the combination of a picker-supporting bar having a series of perforations, and a picker-lever having the thin elastic inner end secured to the supporting-bar, having an upright portion extending upward through one of the perforations in the supporting-bar and having its outer end extended downward and carrying a flexible picker; substantially as described.

4. In a mechanical-playing stringed instrument, the combination of a picker-supporting bar having a series of perforations, and a picker-lever having the thin elastic inner end secured to the supporting-bar, having an upright portion extending upward through one of the perforations in the supporting-bar and having its outer end extended downward and carrying a flexible picker, and a spring arranged to press said picker-lever upward; substantially as described.

5. A self-playing attachment for stringed instruments comprising a frame, means for securing the frame to the instrument, a picker-supporting bar extending in a diagonal direction across the instrument above the strings, picker-levers flexibly secured to the supporting-bar and each having a portion thereof adapted to extend above the upper surface of the supporting-bar, said picker-levers having their outer ends extending vertically downward between the strings and carrying pickers of flexible material; substantially as described.

6. A self-playing attachment for stringed instruments, comprising a frame, means for securing the frame to the instrument, a picker-supporting bar provided with a series of perforations and extending in a diagonal direction across the instrument above the strings, the portion thereof above the bass-strings being at a greater angle with the frame than the portion above the treble-strings, picker-levers flexibly secured to the under side of the supporting-bar and each having a portion thereof adapted to extend through a perforation in the supporting-bar, said picker-



levers having their outer ends extended vertically downward between the strings and carrying pickers of flexible material; substantially as described.

5 7. In a mechanical-playing device for attachment to a stringed instrument, the combination of side strips having a supporting-ledge formed integrally therewith, upwardly-  
10 the side strips, cross-bars beneath the side strips having perforations adapted to receive downwardly-extending pins carried by the side strips, and provided with means for securing the device to the instrument, and feed-  
15 wheels carried by a shaft journaled in the said ears, substantially as described.

8. In a mechanical-playing device for attachment to a stringed instrument, the combination of side strips having a supporting-  
20 ledge formed integrally therewith, rollers extending between and supported by the side strips, having their upper surfaces in line with the supporting-ledge, upwardly-extending ears also formed integrally with the side  
25 strips, cross-bars beneath the side strips having perforations adapted to receive downwardly-extending pins carried by the side

strips and provided with means for securing the device to the instrument, and feed-wheels carried by a shaft journaled in the said ears, 30 substantially as described.

9. In a mechanical-playing device for attachment to a stringed instrument, the combination of side strips each having a supporting-ledge formed integrally therewith, rollers 35 extending between and supported by the side strips having their upper surfaces in line with the supporting-ledge, upwardly-extending ears formed integrally with the side strips, cross-bars beneath the side strips and means 40 for securing the side strips to the cross-bars, the cross-bars being provided with means for securing the device to the instrument, a shaft journaled in the upwardly-extending ears carrying feed-wheels and a picker-supporting 45 bar extending diagonally across the instrument and supported by the cross-bars; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH PANHOLZER.

Witnesses:

FABIJAN AUGUSTIN,  
A. P. GREELEY.