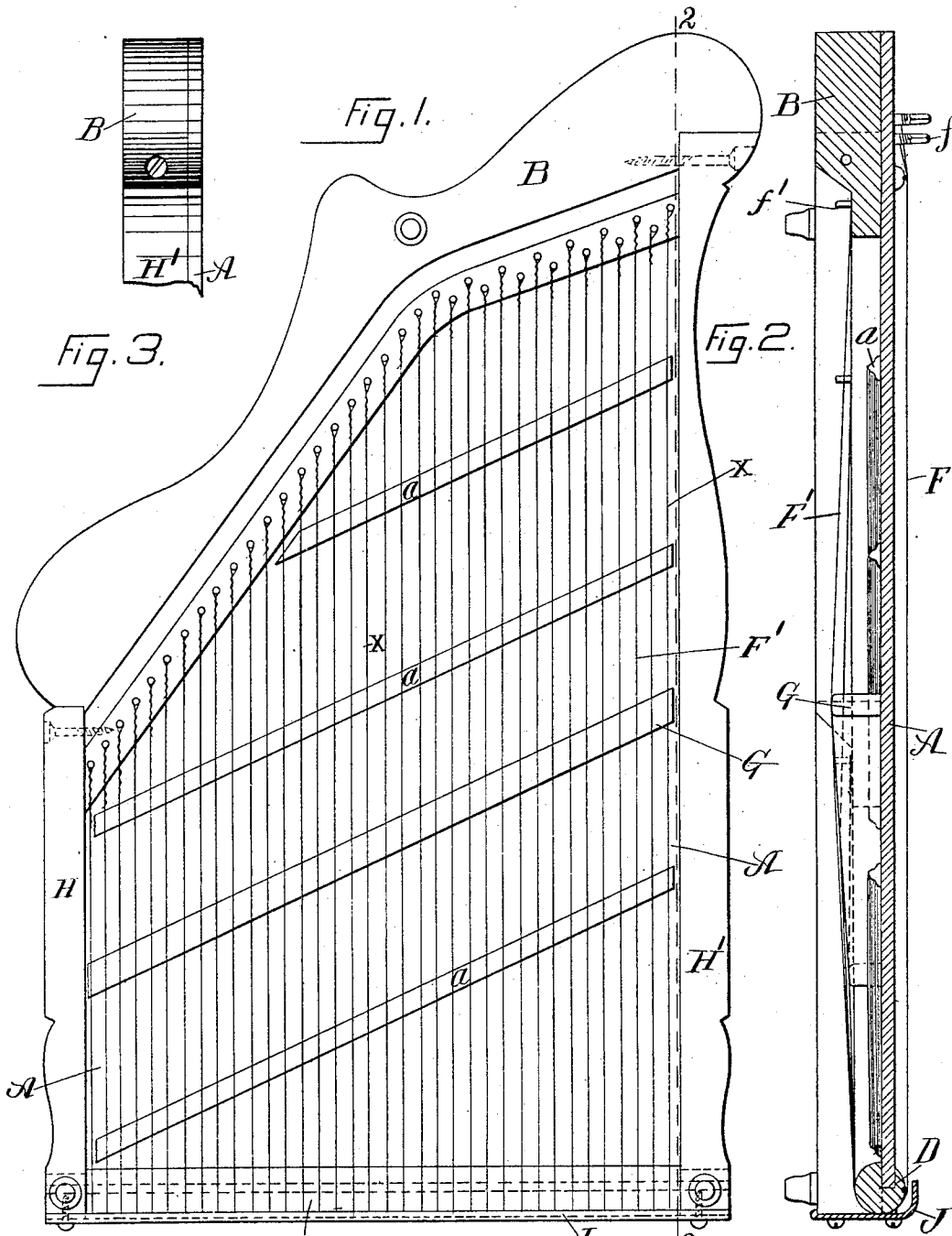


(No Model.)

G. A. FULLERTON.
STRINGED MUSICAL INSTRUMENT.

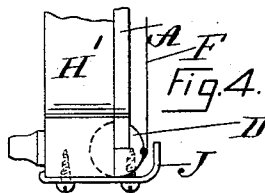
No. 557,662.

Patented Apr. 7, 1896.



WITNESSES:

Wm Magnadiev.
O R Mitchell.



INVENTOR

George A. Fullerton

BY

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UNITED STATES PATENT OFFICE.

GEORGE ARTHUR FULLERTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR
TO JAMES E. MAYNADIER, TRUSTEE, OF TAUNTON, MASSACHUSETTS.

STRINGED MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 557,662, dated April 7, 1896.

Application filed July 19, 1895. Serial No. 556,492. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ARTHUR FULLERTON, of Boston, in the county of Suffolk and State of Massachusetts, have invented a
5 new and useful Stringed Musical Instrument, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a rear elevation of a harp embodying my invention. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a partial edge view showing the junction of one of the finishing side pieces with the head piece. Fig. 4 is a
15 partial edge view showing the junction of one of the finishing side pieces with the foot-piece.

My invention is a sounding-board between a head-piece and a foot-piece forced toward each other by the strain of the strings, two
20 sets of strings being used to increase the compression strain on the sounding-board, and also to prevent deflection of the sounding-board under that strain. Heretofore the strain of the strings has always been sustained
25 by a frame, and although two sets of strings have been used, one set on one side and the other set on the other side of that frame, yet the strain of the strings, whether one set or
30 two sets, has always been upon the frame and not upon the sounding-board; and my instrument is the first in which the strain of the strings was borne by a head-piece and a foot-piece held apart by the sounding-board.

In the drawings, A is the sounding-board, properly secured to the head-piece B, and the board carries across its lower end the foot-piece D. Each string F F' is secured to its tuning-pin *f*, as usual, at one end, but
40 passes around the foot-piece D and is secured to the stay-pin *f'* at its upper end, as shown in the drawings.

When the front strings F are tuned, the strain, even with a harp of the kind shown in the drawings, would be altogether too great
45 to be sustained by the sounding-board A, if that strain were all at one side of that board; but by using the rear strings F' and straining them properly the strain upon the sounding-board is a compressing strain rather than
50 a deflecting strain, and a sounding-board of the usual thickness is made not only well able

to sustain this double strain, but in addition the great compression due to the double strain much improves the quality of the sounding-board.

Theoretically the best way of embodying my invention is to mount the foot-piece D symmetrically on the lower edge of the sounding-board A, and to arrange the head-piece B symmetrically on the upper edge of the
55 sounding-board A, straining the front strings F and the rear strings F' equally; but practically this is objectionable, and it is practically better to mount the sounding-board A on the front of the head-piece B, as shown in the
60 drawings, and to groove the foot-piece D a little to one side of its middle, as shown in Figs. 2 and 4, to receive the lower end of the sounding-board, as this leaves room between the
65 rear strings F' and the back of the sounding-board A for a bridge G, which can be set on a slant and thereby prevent improper deflection of the sounding-board by reason of the strain of the front strings F differing from
70 the strain of the rear strings F'. This bridge G at the back of a sounding-board, which supports the double strain of front and back strings, in combination with the head and foot piece, the sounding-board, and the front and
75 back strings, is one feature of my invention.

In tuning the harp shown in the drawings, straining the front strings F by the tuning-pins *f* also strains the rear strings F', as the strings render over the foot-piece D, which
80 in practice is shod with a strip of sheet metal, when the foot-piece D is of wood, to prevent the strings cutting into it, and this rendering is facilitated by pressing on and rubbing the back strings F' with a short stick of wood
85 from time to time while tuning the front strings F. If the sounding-board A show any wind, it can be straightened by adjusting the bridge-piece G. Tuning-pins may be used with the back strings F'; but they are unnecessary when the bridge-piece G is used.

In Fig. 2 I have shown only two strings, for the reason that an attempt to show more
90 would lead to confusion.

The two strings shown in Fig. 2 are marked *x* in Fig. 1. I have shown the sounding-board
100 A with the usual braces *a*.

The instrument is complete without the fin-

ishing-pieces H H' or the covering-strip J when used as a part of a piano; but when used as a harp or cithern these pieces are necessary to enable the instrument to be handled and laid
 5 upon a table without injury to the rear strings F'. The pieces H H' may also aid somewhat in sustaining the ends of the foot-piece D; but this is not important. The covering-strip J is as usual in instruments of this class, and
 10 is a finish for the lower end of the instrument.

I am aware of the patent to Bourry, No. 322,154, dated July 14, 1885; to Payne, No. 158,116, dated December 22, 1874, and of the British patent to Matthews, No. 2,939, of
 15 1867, and disclaim all shown in them, and in particular I disclaim a musical instrument with a frame under strain from two sets of strings and with a sounding-board, whether secured to the frame, as in Bourry and in
 20 Payne, or held between the front and back sets of strings, as in Matthews, for in my instrument the strings are secured to foot and head pieces, and these two pieces are held apart by the sounding-board, so that when
 25 the instrument is in tune my sounding-board is greatly compressed lengthwise, and has a quality, due to the fact that its fibers are under great strain, which is wholly new with me. Moreover, the head and foot pieces cannot
 30 sag or yield at the middle portions, and

no struts are required between them, which is in itself a feature of great practical importance.

What I claim as my invention is—

1. In a stringed musical instrument the thin 35 flat sheet of wood A; cross-piece B across one edge of sheet A; rod D across the opposite edge of sheet A; front and rear strings F F' extending on both sides of sheet A and about rod D; and means for straining those strings; 40 the double strain of the strings being borne by sheet A as a strut; all combined and arranged substantially as and for the purpose specified.

2. In a stringed musical instrument the thin 45 flat sheet of wood A; cross-piece B across one edge of sheet A; rod D across the opposite edge of sheet A; front and rear strings F F' extending on both sides of sheet A and about rod D; means for straining these strings; and 50 a strip G, between the rear strings F' and sheet A, by which undue buckling of sheet A under the strain of the strings may be prevented by adjusting the strip G, all combined and arranged substantially as and for the 55 purpose specified.

GEORGE ARTHUR FULLERTON.

Witnesses:

O. R. MITCHELL,
 WM. MAYNADIER.