(No Model.)

C. W. ANDERSON & J. ANDERSON.

MUSICAL INSTRUMENT.

No. 457,143. Patented Aug. 4, 1891.

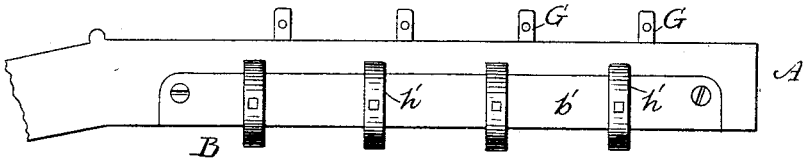

FIG. 1.

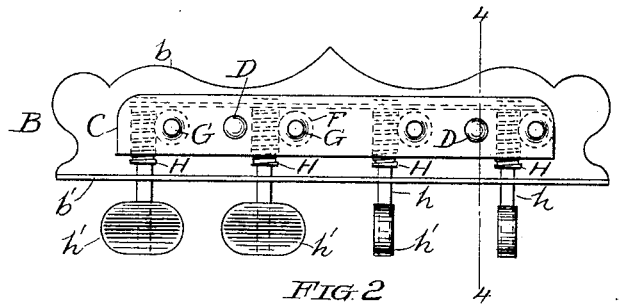

FIG. 2

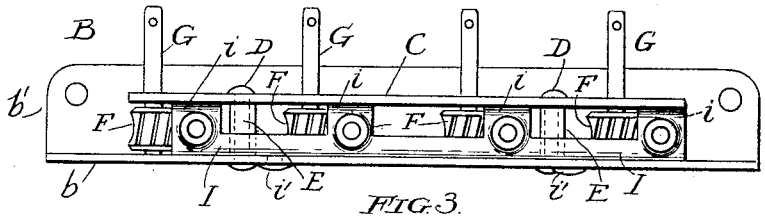

FIG. 3.

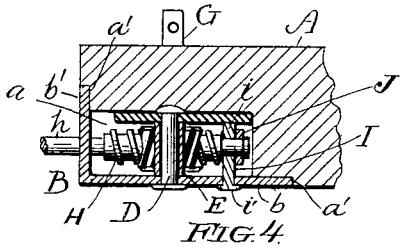

FIG. 4.

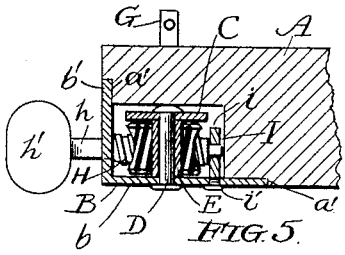

FIG. 5.

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UNITED STATES PATENT OFFICE.

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MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 457,143, dated August 4, 1891.

Application filed February 7, 1891. Serial No. 380,586. (No model.)

To all whom it may concern:

Be it known that we, CARL W. ANDERSON and JOSEPH ANDERSON, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Musical Instruments, of which the following is a specification, reference being had to the accompanying drawings, which are made a part hereof, and in which—

Figure 1 is a side elevation of the head of a musical instrument with our invention applied thereto. Figs. 2 and 3 are respectively a plan view and a side elevation of the winding mechanism. Fig. 4 is a transverse section of one side of the head shown in Fig. 1, but on a larger scale. Fig. 5 is a similar view showing the invention under a slight modification.

The objects of the present invention are to improve, simplify, cheapen, and lighten the heads of stringed musical instruments; and to these ends the invention consists in certain features of novelty that are particularly pointed out in the claims hereinafter.

Referring to the drawings, A represents the wooden portion of the head, one side only of which is shown in Figs. 4 and 5, since both sides are of similar construction. In the under side of this portion is a deep rabbet *a*, which extends quite to the side of the head and is bounded by shallower rabbets *a'*.

B is an angle-plate, the edges of which fit in the rabbets *a'* and are secured to the wooden portion A by screws, and C is a narrow plate, which is firmly secured to the bottom flange *b* of the angle-plate B by rivets D, the two plates being held at the proper distance apart by sleeves E, through which said rivets pass. Between these plates B and C are situated four (more or less) worm-wheels F, from which pins G project upward through perforations formed through the plate C and through the wooden portion A of the head, extending above said wooden portion far enough to enable the attachment of the strings. Gearing with these worm-wheels are worm-screws H, the stems *h* of which pass outward through the side flange *b'* of the plate B and have the thumb-heads *h'* secured to them. The inner ends of these screws are reduced and journaled in lugs *i*, that project upward from a narrow plate I, upon the under side of which are other lugs or teats *i'*, which project through openings in the flange *b* of plate B and are riveted on the under side thereof for holding the plate I in proper position. Lightness being a desideratum, the plates C and I are made of minimum weight, regard being had to strength and durability. These plates (and especially the plate I) are also made as narrow as may be, in order to expose the worm-gears to view, so that should any part get out of order the defect can be seen without first taking either of the plates off. By providing one plate for retaining the worm-wheels in place and another and separate plate for retaining the worm-screws the parts may be secured together more readily in the first instance than if these parts were all retained in place by a single angle-plate. Furthermore, the labor of repairing is very much lessened, as it is not necessary to free all the parts in order to remove one of them.

In Fig. 4 I have shown the plate C bearing firmly on the tops of the lugs *i* and at its edge bearing firmly against the rear wall of the rabbet *a;* but in Fig. 5 this plate and the lugs do not have contact with each other.

In Fig. 4 the journals of the screws H pass through washers J and are riveted; but in Fig. 5 they simply pass through perforations in the lugs *i*, which they fit snugly. In this figure the screws H bear at their opposite ends against the front flange *b'* of the plate B and the lugs *i* of the plate I, respectively. By forming these lugs of metal having some elasticity and leaving their upper ends free (entirely disconnected from any other part) they may be made to bear with a firm but yielding force against the ends of the worm-screws and cause these in turn to bear in like manner against the flange *b'*, thus preventing any jingling of these parts.

Having thus described our invention, the following is what we claim as new therein and desire to secure by Letters Patent:

1. The combination, with the angle-plate B, the worm-wheels F, having pins G, the worm-screws H, gearing with said wheels and having the stems *h*, and means for retaining said wheels in place, of the separate narrow plate I, secured to the plate B and having the lugs *i* projecting therefrom at proper distances

apart, said worm-screws being journaled in said lugs and the opposite flange b' of the plate B, substantially as set forth.

2. The combination, with the angle-plate B, the worm-wheels F, having pins G, the worm-screws H, gearing with said wheels and having the stems h, and means for retaining said worm-wheels in place, of the separate narrow plate I, having the lugs or teats i' riveted to the plate B and having the perforated lugs i projecting from its top side at proper intervals, said worm-screws being journaled in said lugs and the opposite flange b' of the plate B, substantially as set forth.

3. The combination, with the angle-plate B, the worm-wheel F, having pins G, the worm-screws H, gearing with said wheels and having the stems h, and means for retaining said worm-wheels in place, of the separate plate I, of resilient material, secured to the plate B and bearing against the ends of the worm-screws, said screws being journaled in said plate I and the opposite flange b' of the plate B, substantially as set forth.

4. The combination of the angle-plate B, the worm-wheels F, having pins G, the worm-screws H, gearing with said worm-wheels and having stems h, the narrow plate C, between which and the flange b of plate B said worm-wheels are situated, means for firmly holding said plate C and flange b at the proper distance apart, and the separate narrow plate I, secured to the flange b of plate B and having the perforated lugs i on the top side thereof, said worm-screws being journaled in said lugs and the opposite flange b' of plate B and extending from one to the other, substantially as set forth.

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