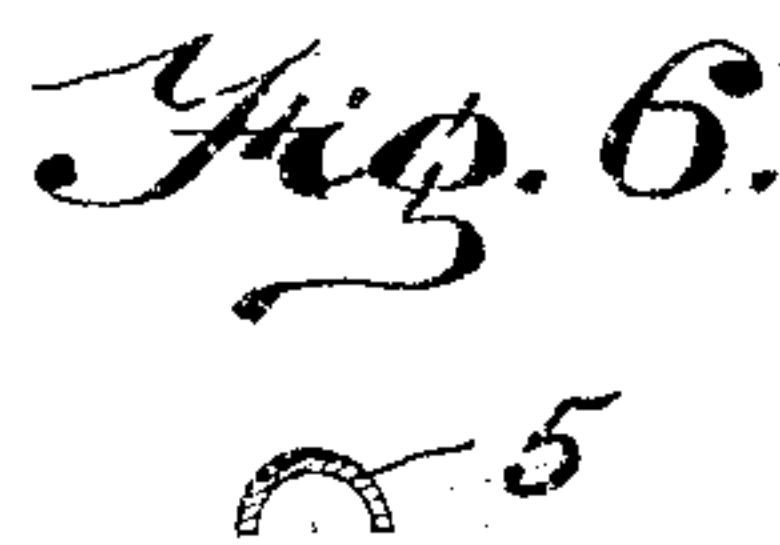
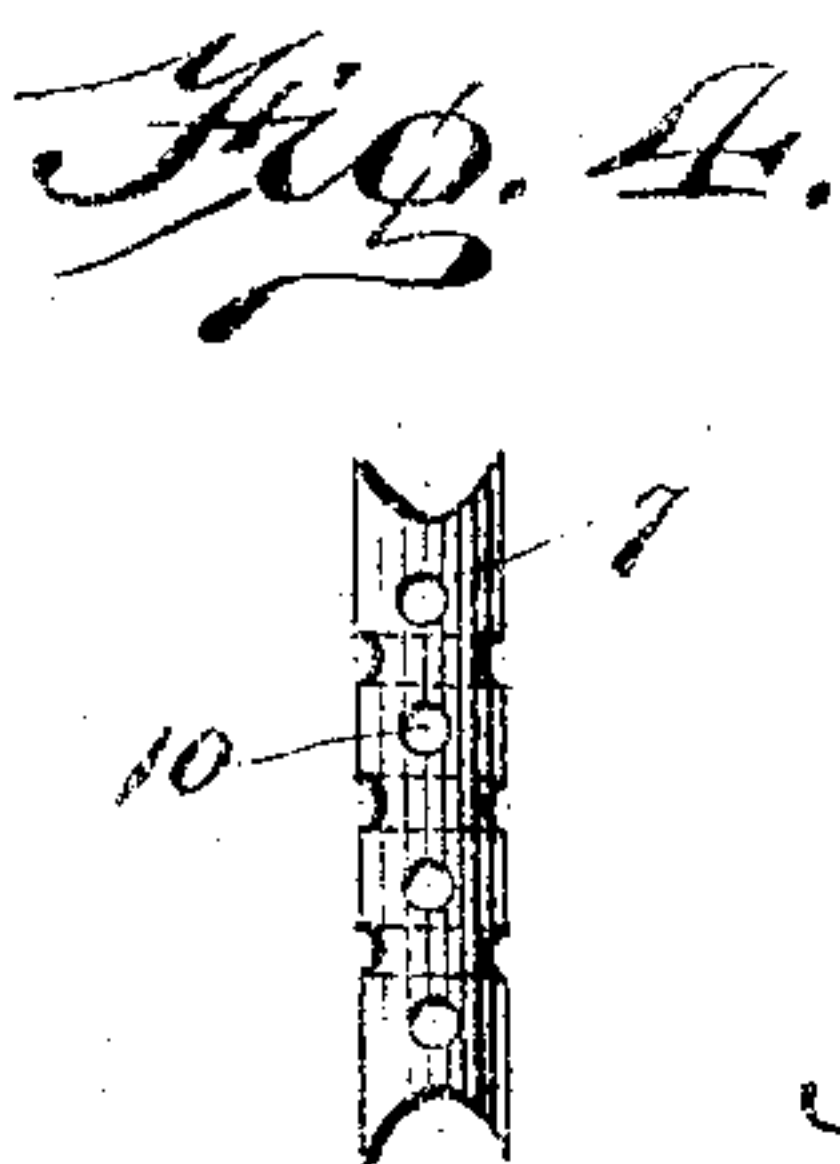
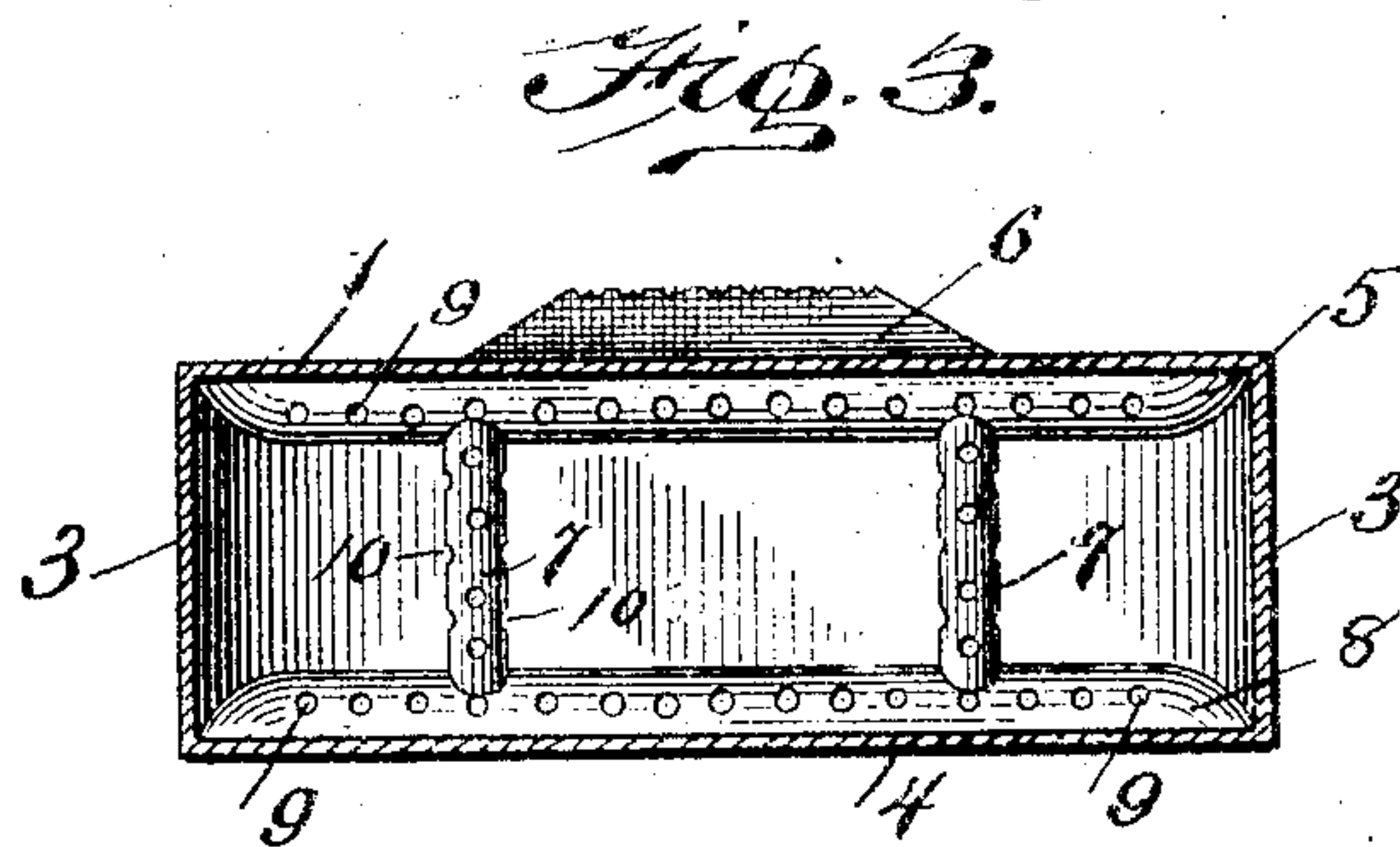
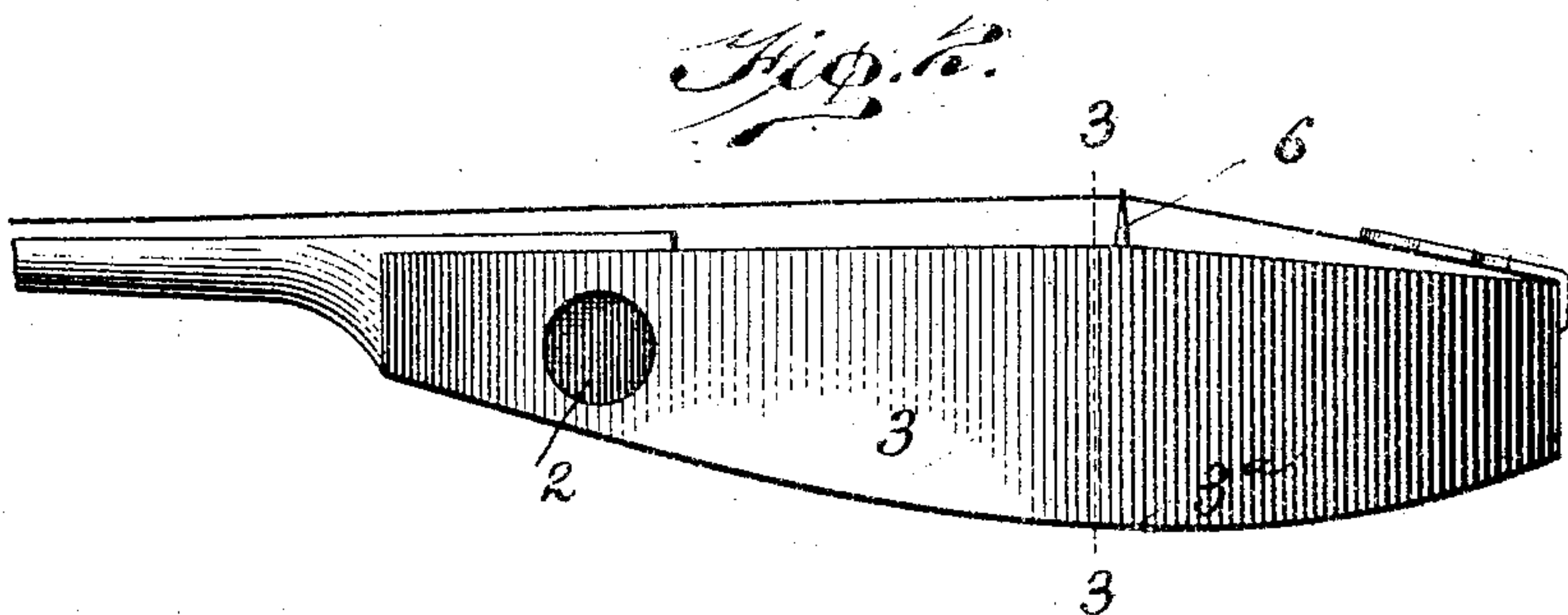
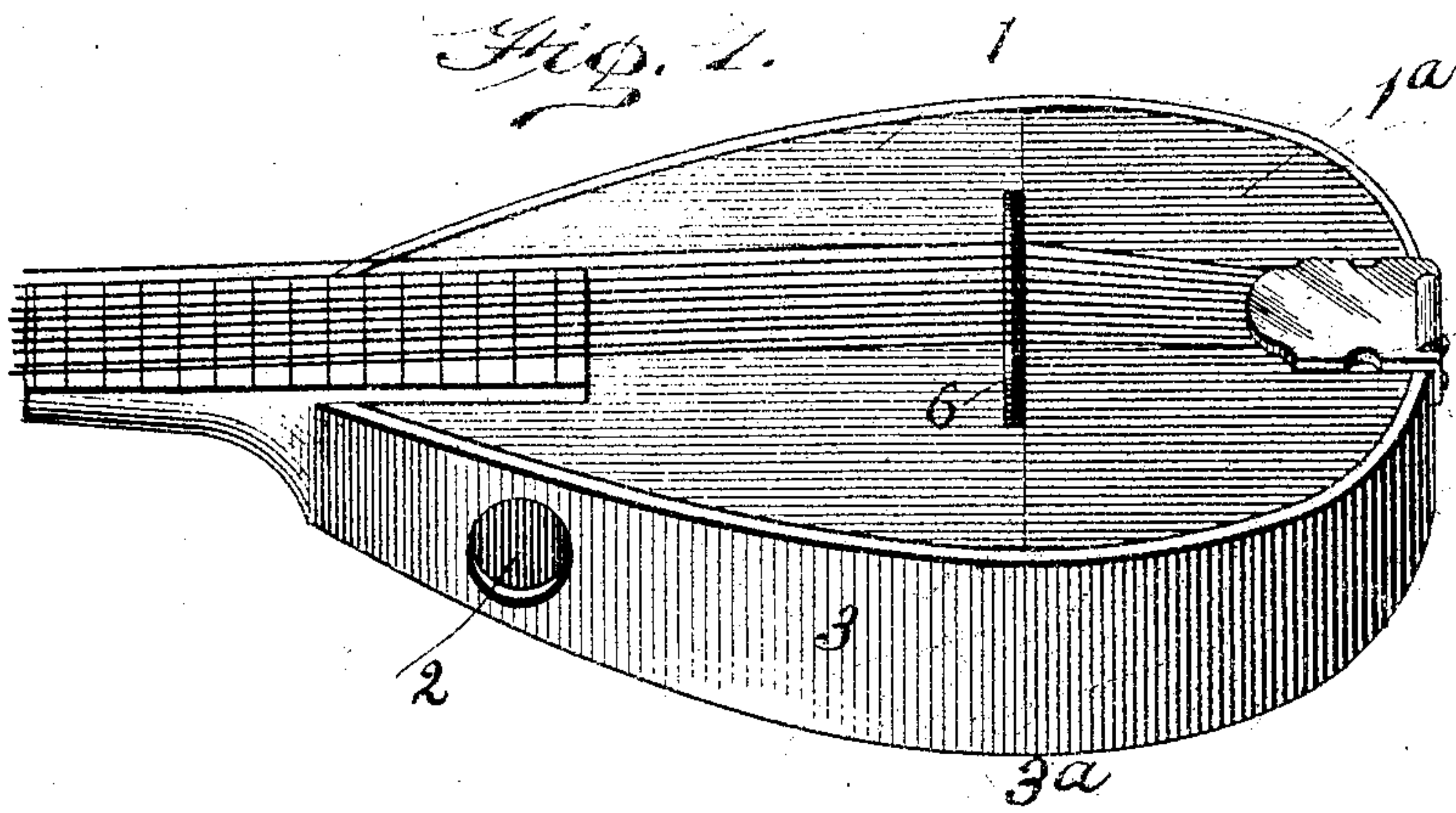


No. 775,658.

PATENTED NOV. 22, 1904.

H. J. ISBELL.  
MUSICAL INSTRUMENT.  
APPLICATION FILED APR. 1, 1903.

NO MODEL.



Witnesses

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# UNITED STATES PATENT OFFICE.

HARRY J. ISBELL, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO  
WILLIAM STECK, OF ST. LOUIS, MISSOURI.

## MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 775,658, dated November 22, 1904.

Application filed April 1, 1903. Serial No. 150,602. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY J. ISBELL, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Musical Instruments, of which the following is a specification.

The primary object of this invention is the construction of a musical instrument having the general characteristics of a mandolin, but which, unlike the mandolin, will be adapted for solo playing on account of producing a mellow and sonorous tone, especially upon the D and G strings, whereas these strings on a mandolin sound wiry and shallow and must be heard with another instrument to be appreciated.

Another object is to secure the above-mentioned results by a construction much less difficult and costly than the mandolin and one which will dispense with all the reinforcing-bars of the top but that beneath the bridge, as these bars occupy sound-space and destroy much of the resonance of the sound-board of such an instrument.

A further object is to provide reinforcing-bars for instruments of this character that will have a light but strong construction, as well as sound-posts having the same characteristics, and also to provide for the cooperation of these bars and posts to form a reinforcing sound-distributing frame that will admit of the ready application of the posts thereof and hold them firmly in position by the pressure of the strings of the instrument.

With these objects in view the invention consists in several novel features of construction and arrangement of parts, all as hereinafter described, and specifically pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of an instrument constructed in accordance with the invention. Fig. 2 is a side elevation; Fig. 3, a transverse vertical section taken on line 3 3 of Fig. 2; Fig. 4, a side view of one of the sound-posts; Fig. 5, a cross-section view of the sound-post, and Fig. 6 a cross-section view of one of the brace-bars.

In the construction of this instrument I employ the usual form of mandolin top or sound-board 1, but without any sound-hole therein, the presence of which lessens the area of resonating-surface and requires the strengthening of the top by braces, one forward and one rearward of the sound-hole, which have a damping effect, while taking up much of the sound-space of the instrument and obstructing the sound-waves.

To admit of the employment of an imperforate sound-top and at the same time provide for the freest possible escape of sound, I have provided a sound-hole in the hoop, preferably in each side of the hoop 3 and adjacent the tapering end of the instrument, as at this point the sound-holes will be in planes at an angle to the longitudinal axis of the sound-body and face slightly rearward, thereby receiving more directly the sound-waves from the larger portion of said body, the curve of the hoop directing the sound forward and the tapering character of the forward end of the instrument having the effect of forcing the sound out at the said holes. To further increase the projection forward of the sound, the hoop, besides being cut to provide an incline for the inclined part 1<sup>a</sup> of the top, has a width gradually expanding from each end of the sound-body to a point 3<sup>a</sup> and formed with a continuous bottom curve having its greatest swell at said point and making the greatest depth of the sound-body at the point where the diverging planes of the top meet. The hoop is thus adapted to receive the back 4, which, though formed flat, will have when secured to the bottom edge of the hoop a slight lengthwise curve. In practice the width of the hoop is narrower at the forward end of the sound-body, that end being farther removed from the point of the greatest swell of the back and it being desirable for the purpose of tone production to preserve the harmonious tapering character of top, back, and hoop, which confining parts produce a sound-space in the forward half of the instrument, which tapers forwardly on all sides, while in the rear half of the sound-space of the instrument a semicircular wedge-



shape space is confined. The acoustical results from this arrangement of vibrating and resounding surfaces is such as not only to produce a body which from its graded character will the more readily respond to the various pitches of tone and give a live carrying quality of tone, but will cause the sound to be directed to the sound-openings, especially by virtue of the wedge-shape character of the rear portion of the sound-body. It may also be added that the sound-holes as located leave the sound-space of the instrument unbroken except as is necessary for the escape of the tone.

A single transverse brace-bar 5 is affixed to the under side of the sound-top and directly beneath the bridge 6, which bar also serves to distribute the vibrations of the top to the back and through the agency of sound-posts 7 and a similar brace-bar 8 affixed to the back. These braces 5 and 7 are semicircular in cross-section and of hollow construction, as shown in Fig. 6, so as to provide a light but strong brace, and, further, to decrease its weight without impairing the strength thereof there is formed a line of holes 9 through each side wall thereof. The posts 7 are tubular and lightened by means of the holes 10, formed through the walls thereof, and at their ends they are notched to conform to the opposing faces of the bars 5 and 8. These posts can be readily placed in position, and when the instrument is placed under tension of its strings the pressure brought upon the top will bring about a firm contact between the posts and bars, which will hold the posts in place and, in effect, make of these assembled parts an integral structure for the distribution of vibration. In order to secure great strength as well as lightness in the posts and brace-bars, I have formed the same from well-dried cane, which is split for the pur-

pose of forming the brace-bars. This growth possesses the fibrous character necessary for the proper transference of sound, and when modified as herein set forth its use is attended with results not obtainable where the said bars and posts are produced from solid wood.

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

1. A musical-instrument sound-body comprising an imperforate top and back, and a uniting-hoop of forwardly-tapering loop form, having one or more sound-openings therein at its tapering end, said hoop having a width gradually increasing from each end of the sound-body to an intermediate point, substantially as and for the purpose set forth.

2. A musical-instrument sound-body comprising an imperforate top and back, and a hoop of forwardly-tapering form, having one or more sound-openings therein at its tapering end, said hoop having a width gradually increasing from each end of the sound-body to a point intermediate the ends, and having its top edge lying in diverging planes and the bottom edge outwardly curved from end to end of the sound-body, substantially as and for the purpose set forth.

3. A musical-instrument sound-body comprising a top, back and uniting-hoop, an interior brace-bar for the top and one for the back arranged under that of the top bar, and one or more sound-posts having bearing at the ends thereof on said bars, substantially as and for the purpose set forth.

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

H. J. ISBELL.

Witnesses:

WM STECK,  
L. H. CRUPP.