

(No Model.)

2 Sheets—Sheet 1.

B. McLAUGHLIN.
MUSICAL INSTRUMENT.

No. 591,288.

Patented Oct. 5, 1897.

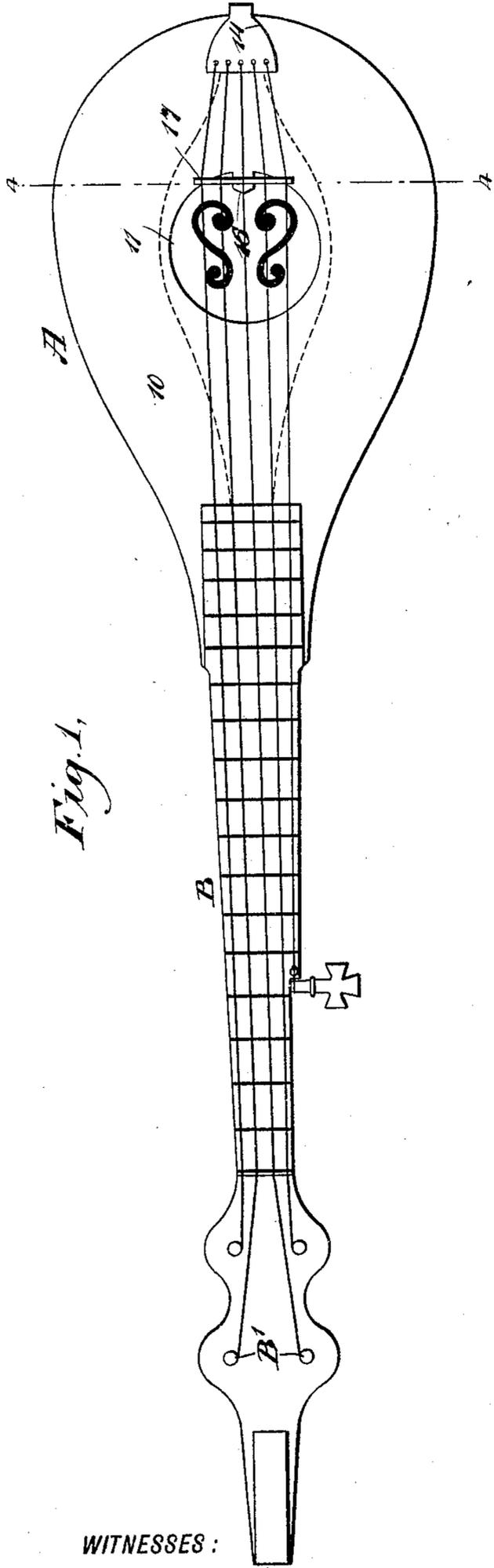


Fig. 1.

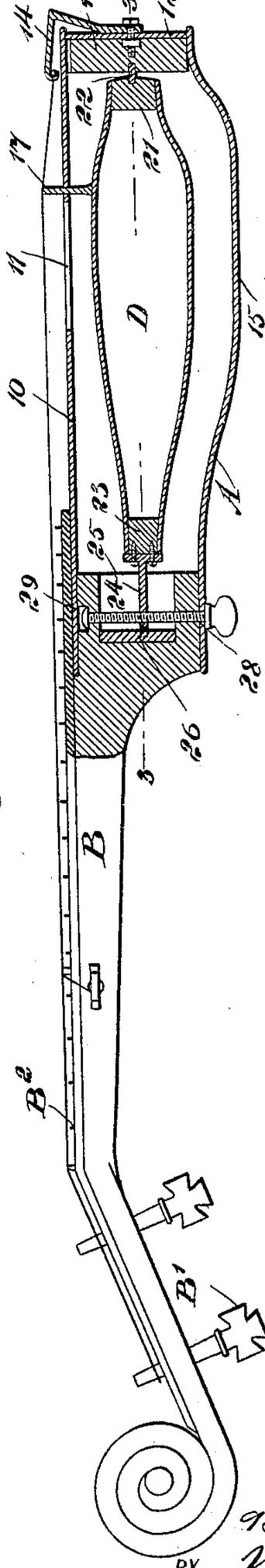


Fig. 2.

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ATTORNEYS.

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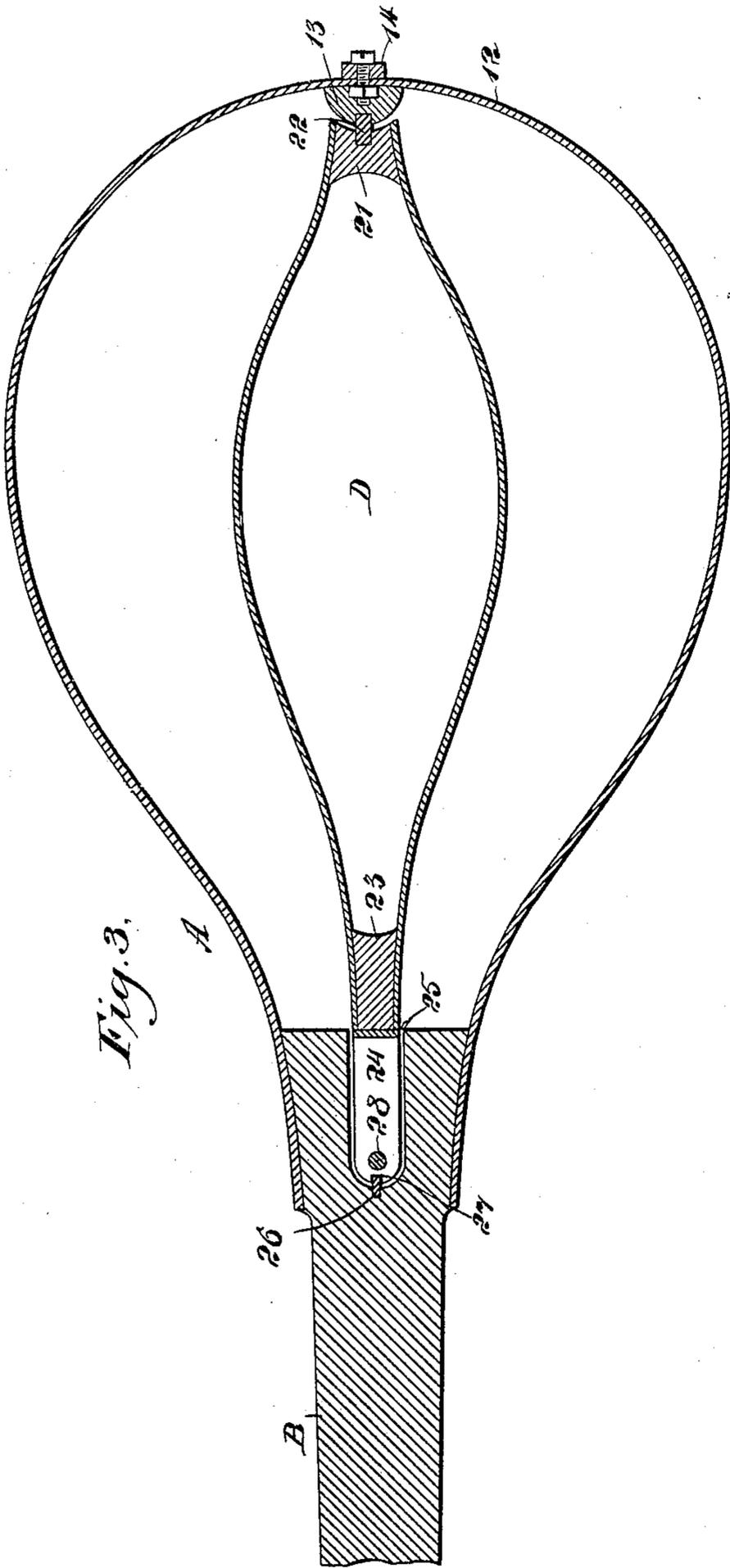


Fig. 3.

Fig. 5.

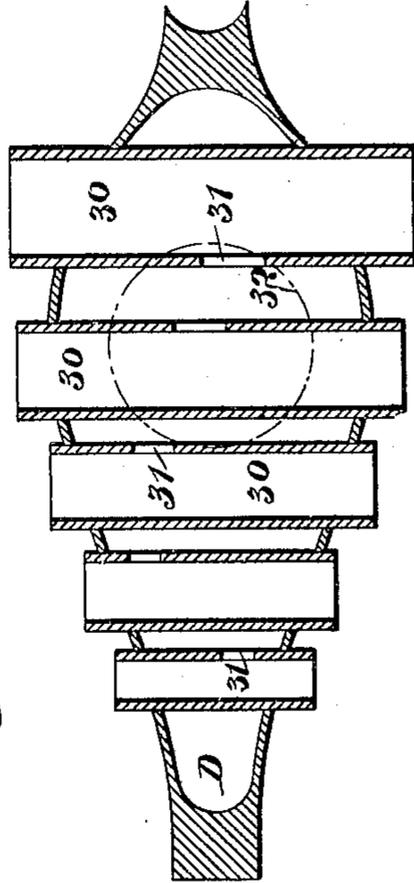
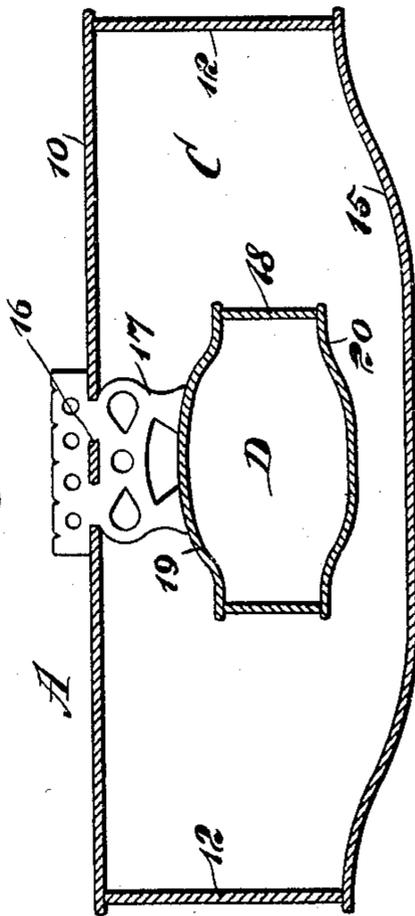


Fig. 4.



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UNITED STATES PATENT OFFICE.

BENJAMIN McLAUGHLIN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND NATHAN D. ALLEN, OF SAME PLACE.

MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 591,288, dated October 5, 1897.

Application filed December 17, 1896. Serial No. 615,999. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN McLAUGHLIN, of Boston, (Charlestown,) in the county of Suffolk and State of Massachusetts, have
5 invented a new and useful Improvement in Musical Instruments, of which the following is a full, clear, and exact description.

My invention relates to an improvement in stringed instruments of the type of the guitar, banjo, mandolin, and violin; and the object of the invention is to construct the instrument in a manner to obtain a tone of greater volume and of purer quality than at present attainable in any instrument of the
15 said class.

A further object of the invention is to provide a speedy and convenient means for raising and lowering the pitch of the instrument after the strings have been tuned in the usual
20 manner.

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 characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of an instrument
30 of the guitar or banjo type to which the invention is applied. Fig. 2 is a longitudinal vertical section through the said instrument and through the improved attachment. Fig. 3 is a horizontal section taken substantially
35 on the line 3 3 of Fig. 2. Fig. 4 is a transverse section taken on the line 4 4 of Fig. 1, and Fig. 5 is a horizontal section through the improved resonator of slightly-modified form and adapted for use in connection with any
40 of the instruments heretofore named.

The instrument illustrated in the drawings comprises a body A, which is shown inclosed at the back as well as at the sides, and a neck B, having the usual keys B' and frets B²
45 when such are necessary.

The instrument may be made of any suitable or approved material, and the head or top 10 is provided with a sound-opening 11. Ordinarily the rim 12 of the instrument is
50 made of bird's-eye maple and is in one con-

tinuous piece, the ends being solidly glued or otherwise secured to the neck B. The head 10 is made of spruce and is preferably made to extend slightly beyond the rim. At the rear central portion of the rim the usual
55 vertical brace 13 is secured in order that the tailpiece 14 may be properly fastened to the instrument, and the back 15 of the instrument, when a back is used, is likewise preferably made of wood. 60

The sound-opening 11 at the central portion of its rear edge is provided with a horizontal tongue 16, which tongue, as illustrated in Fig. 4, is made to enter an opening in the bridge 17, whereby the bridge is permanently
65 held in engagement with the top or head 10 of the instrument and extends down within its interior chamber C for a predetermined distance. The top of the bridge is made of such width that its end portions will extend
70 beyond the sides of the sound-opening to an engagement with the head or top, as is also fully shown in Fig. 4.

A resonator D is located in the chamber C of the instrument, and the said resonator preferably consists of a rim or side 18, of maple, the top 19 and the bottom 20 being of spruce, and the said top and bottom are arched in opposite directions. As shown in Fig. 3, the resonator tapers from its center in direction
80 of its ends, and at its rear end the resonator is provided with a block 21, having a pin 22 or its equivalent secured therein and entered into the end brace 13 of the body of the instrument, as shown in both Figs. 2 and 3. A
85 second block or plug 23 closes the opposite end of the resonator or that end which is adjacent to the neck, while a bracket 24, preferably of T shape, has its vertical member secured by screws, bolts, or like devices to
90 the block or plug 23, the horizontal member of the bracket extending within a recess 25, made vertically in the end portion of the neck, as illustrated particularly in Figs. 2 and 3.

At the back of the recess 25 a metal plate
95 26 is securely fastened, extending from top to bottom of the recess, and this plate enters a slot 27, which is made in the end of the horizontal member of the bracket 24, serving
100 as a guide for the said bracket. The hori-

zontal member of the bracket is furthermore provided with a threaded opening, through which an adjusting-screw 28 is passed, the head of the screw being at the bottom portion of the body immediately below the neck, while the upper end of the screw is flattened to turn readily in a recess 29, made near the upper portion of the neck above the recess 25.

The adjusting-screw 28 is adapted for moving the resonator to and from the head or top of the instrument, and the upper surface of the resonator is adapted to engage with the bottom portion of the bridge, but is independent of the bridge. Thus by moving the resonator upward or downward or to or from the bridge I am enabled to increase or decrease the resonant qualities of the instrument and raise or lower or change the key or pitch without necessitating the manipulation of the keys after the strings have once been put in tune. The change in the pitch is brought about by altering the tension of the strings, accomplished by the adjustment of the resonator in a direction to force the bridge upward or to permit it to closely approximate its normal position or reach said position. The head or top 10 is so made that it may be sprung upward without detriment to the instrument the required distance to raise the pitch about two octaves above the normal pitch in the key of A. When the strings are being tightened, all other parts of the instrument, through the upward movement of the resonator, receive a sufficient amount of tension to call forth all the vibrating qualities of which each separate part is possessed, the bottom of the resonator having already been sufficiently strained while being made. It is therefore evident that upon the upward movement of the resonator it not only tightens the strings, but it brings a certain amount of pressure on both of its ends and top sufficient to call forth its utmost vibrating qualities. Further, by the arrangement of the bridge connecting solidly with the head or top it too receives the desired amount of tension by the upward movement of the resonator, the bridge being braced on the inside in a manner which will enable it to withstand a great deal more tension than it is necessary to subject it to.

Under this construction a stringed instrument—such as a guitar, violin, mandolin, or banjo—may be expeditiously and conveniently pitched to properly chord with a piano or other instrument in connection with which it is to be used. By attaching the bridge to the top or head of the instrument I am enabled to draw all of the sounding qualities of the main body of the instrument therefrom, and resting, as it does, preferably slightly against the resonator, the bridge serves to draw the peculiar sweet sound of that important part of the instrument. In fact, by the novel arrangement of the bridge shown I am enabled to draw two distinct tones and blend them together, creating the loudest, sweetest, and most mellow tone ever before ob-

tained from an instrument of the class or type to which the improvement is particularly adapted.

In Fig. 5 I have illustrated a slight modification in the construction of the resonator. The main body of the resonator is the same as that heretofore described; but said resonator is crossed by a series of tubes 30, which are open at both ends and are graduated in size, the different sizes of tubes corresponding to the different sizes of strings, and each tube 30 is provided with an opening 31, preferably in one side, and the opening in each pipe or tube is located as nearly as possible under the string whose vibration it is intended to aid or reëcho. The sides and pipes of this resonator are usually made of spruce and the top and bottom of cherry, and the top is provided with a circular opening or sound-hole 32, (shown in dotted lines,) which is so placed on the resonator as to be immediately in front of the bridge. This form of the resonator may be made stationary in common banjos and adjustable in instruments of the type of the guitar and mandolin.

In the form of the resonator illustrated in Figs. 1, 2, 3, and 4, **F** or **S** openings are made in the top thereof immediately below the sound-opening 11 in the head.

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

1. In a stringed musical instrument, a resonator located below the head of the body of the instrument, being pivoted at the tail portion of the body, and an adjusting device at the neck-section of the body, controlling the corresponding end of the resonator, substantially as shown and described.

2. In a stringed musical instrument, a resonator adapted to be located below the head or top of the instrument, and tubes carried by the resonator, as and for the purpose specified.

3. In a stringed musical instrument, a bridge secured to the head or top of the instrument, extending above and below the same, and a resonator located below the top or head and adapted for engagement with the lower portion of the said bridge, as and for the purpose specified.

4. In a stringed musical instrument, a resonator located below the head or top of the said instrument and pivoted at one end, and an adjusting device connected with the opposite end of the resonator, whereby it may be carried to or from the said head, as and for the purpose set forth.

5. In a stringed musical instrument, a resonator located below the head or top of the said instrument and pivoted at one end, an adjusting device connected with the opposite end of the resonator, whereby it may be carried to and from the head, and a bridge secured to the head or top of the instrument, extending above and below the same, the lower end of the bridge being adapted for engage-

ment with the upper surface of the resonator, as and for the purpose set forth.

5 6. In a stringed musical instrument, a resonator adapted to be located below the head or top of the instrument, the said resonator being provided with tubes having open ends, as and for the purpose set forth.

10 7. In a stringed musical instrument, a resonator adapted to be located below the head or top of the instrument, the said resonator being provided with tubes having open ends, each tube being further provided with an opening in its side, the openings in the sides being differently located in the different tubes
15 and arranged to be beneath the string of the instrument whose vibration is to be aided by

the tubes of the resonator, as and for the purpose set forth.

8. A resonator for attachment to stringed musical instruments and adapted to be placed 20 below the head thereof; the said resonator consisting of a chambered body, tubes crossing the said chamber, graduated in size and open at their ends, each of the said tubes being also provided with a side opening, which 25 side openings in the said tubes are located at different distances from their ends, substantially as shown and described.

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Witnesses:

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