Sept. 13, 1932. C. BONEWITZ 1,876,558

STRINGED MUSICAL INSTRUMENT

Filed July 1, 1931 2 Sheets-Sheet 1

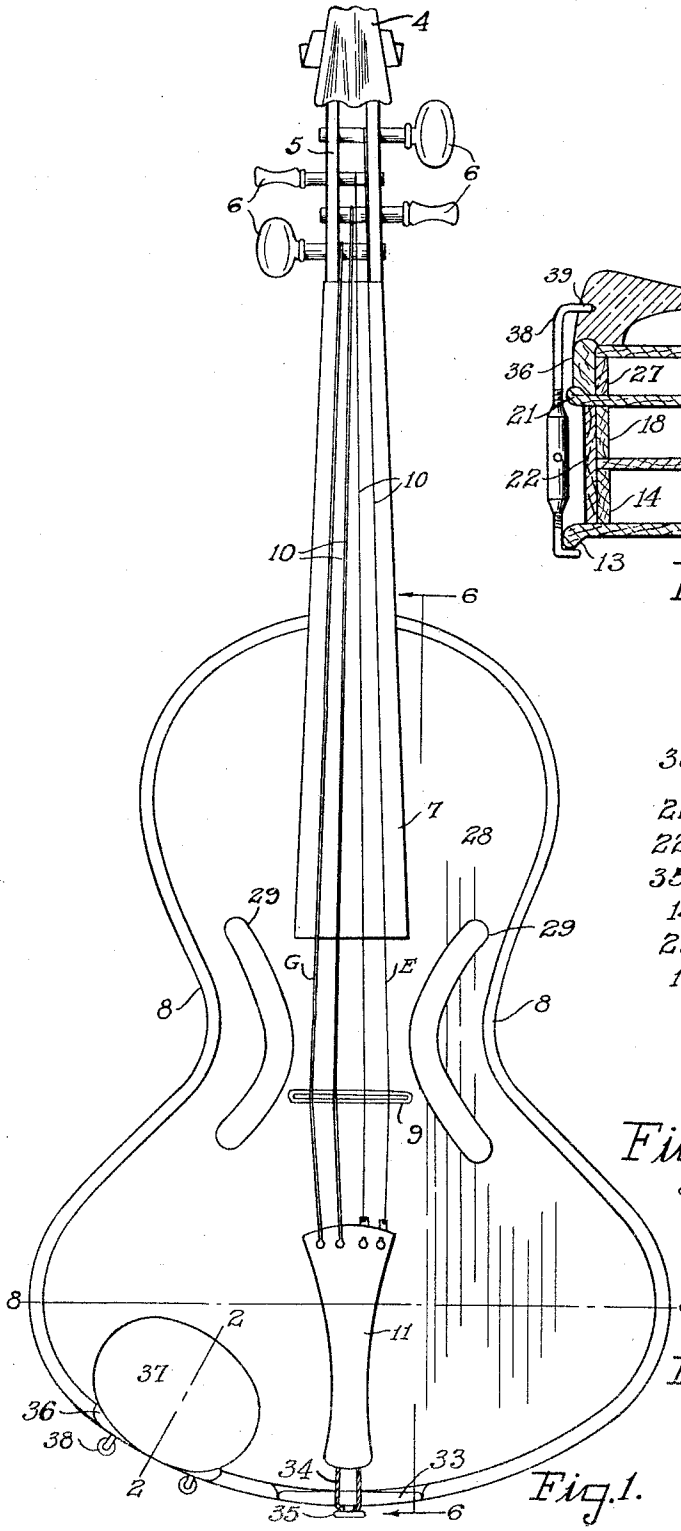


Fig. 1.

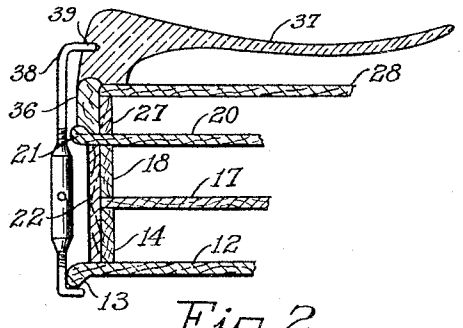


Fig. 2.

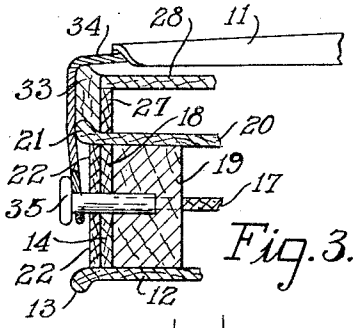


Fig. 3.

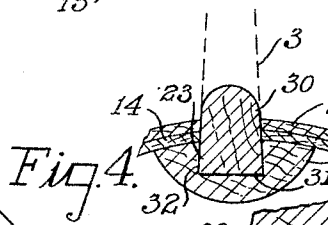


Fig. 4.

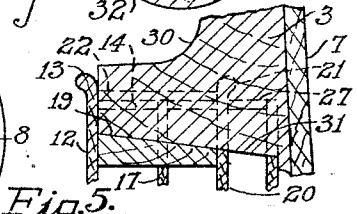


Fig. 5.

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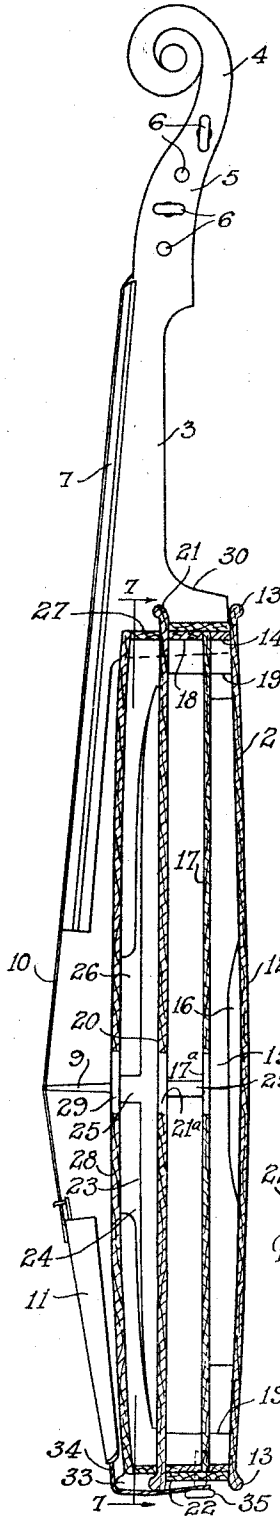


Fig. 6.

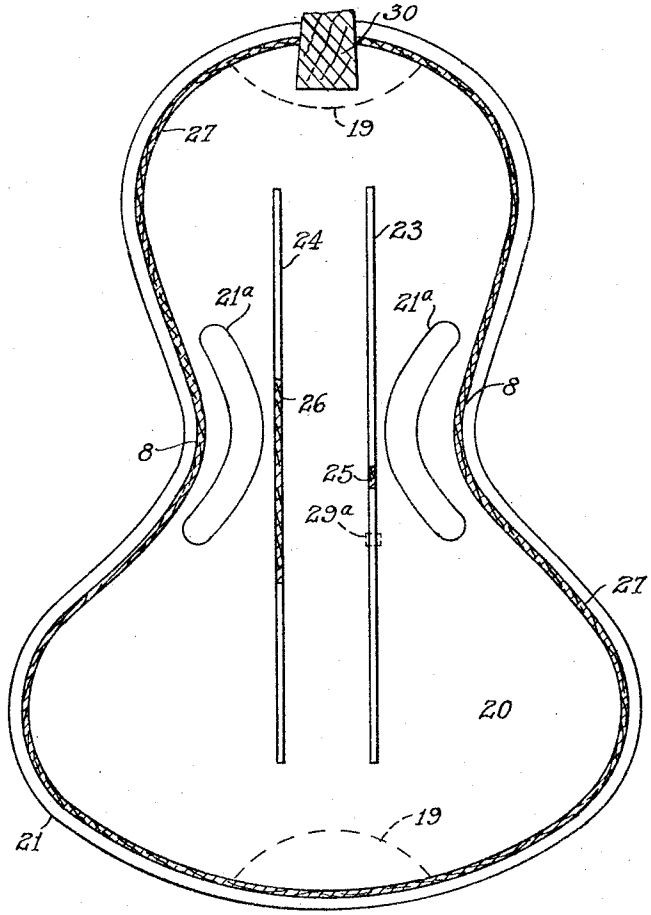


Fig. 7.

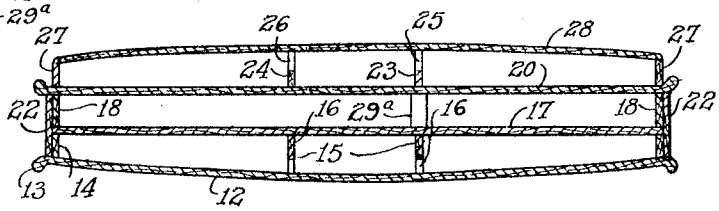


Fig. 8.

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Patented Sept. 13, 1932 1,876,558

UNITED STATES PATENT OFFICE

CLARENCE BONEWITZ, OF DAYTON, OHIO

STRINGED MUSICAL INSTRUMENT

Application filed July 1, 1931. Serial No. 548,061.

This invention relates to new and useful improvements in stringed musical instruments.

It is one of the principal objects of my invention to employ baffles to increase the tonal quality and volume of a musical instrument such as a violin.

Another object of my invention is to provide a unique construction to facilitate the assembling of the instrument.

It is another object of my invention to provide sound members of varying shapes that are so positioned in relation to the instrument strings within the case as to improve their tonal quality.

It is another object of my invention to provide a unique chin rest support that does not interfere with the resonant properties of the case.

Other important and incidental objects will be brought out in the following specification and particularly set forth in the subjoined claims.

In the accompanying drawings, Figure 1 is a complete view of a musical instrument, in this instance a violin, embodying my improvements. Figure 2 is a sectional view taken on the line 2—2 of Figure 1, through the chin rest. Figure 3 is a sectional view taken through the body, showing the support and mounting for the tail piece. Figure 4 is a transverse sectional view taken through the button portion of the neck, showing the dove-tail connection with the body. Figure 5 is a sectional view taken through the button portion of the neck, showing the inclined face of said button portion. Figure 6 is a longitudinal sectional view taken through the case on the line 6—6 of Figure 1. Figure 7 is a sectional view taken through the body on the line 7—7 of Figure 6. And Figure 8 is a transverse sectional view taken through the body on the line 8—8 of Figure 1.

Referring now to the drawings, the numeral 1 designates a conventional stringed instrument such as a violin, and having a body 2 to one end of which is attached the neck 3. The latter terminates at its outer end in a scroll 4 and a peg box 5 in which are mounted pegs 6 in the customary manner. Mounted on the neck 3 is a finger board 7 that extends from the peg box over the body to the waist 8.

Secured to the pegs 6, and extending over the finger board 7 and a conventional bridge piece 9, are strings 10 that terminate at the usual tail piece 11. (See Figures 1 and 6.)

The body 1 consists of a back 12 which is slightly convexed and has at its periphery a bead 13. Glued to the inner face of the back, and perpendicular thereto, is a spacer 14 shaped to the same profile as the back and positioned near its periphery. (See Figures 6 and 8.) Glued to the inner face of the back 12 and arranged in parallelism with the strings 10, are ribs 15, 15 having cut in their bottom faces below the bridge 9, recesses 16.

Also glued to the top face of the spacer 14 and ribs 15, 15 is a baffle 17 having sound holes 17ª. It is evident that since the center portion of the back 12 is not supported on the ribs, being under their recesses 16, it is more free to vibrate.

Secured to the top face of the baffle 17 is another spacer 18 having the same profile as the spacer 14. Also secured within the walls of the spacers 14 and 18, and at each end of the ribs 15, 15, are quadrant shaped glue blocks 19 that extend through the baffle 17 and have their upper faces substantially in the plane of the top face of the spacer 18. (See Figures 3, 4, 5 and 6.)

Glued to the top face of the spacer 18 and the glue blocks 19, 19 is another baffle 20 of the same size and contour as the back 12 and also provided with a bead 21 turned opposite to the bead 13, and with sound holes 21ª.

To further reinforce the body 1, I have surrounded the spacers 14 and 18, and the baffle 17, with an outer wall 22 that is glued to the spacers and the baffle. (See Figures 2, 3, 4, 6 and 8.)

Secured to the top face of the baffle 20 between the sound holes 21ª, above the ribs 15, 15, are two ribs 23 and 24. The rib 23 extends substantially the full length of the baffle 20 to which it is glued in position below the "E" string. The center portion of the rib 23 is provided with a narrow upwardly projecting lug 25 below the bridge 9.

The rib 24, which is of the same length as

the rib 23, is also glued to the baffle 20 below the "G" string. This rib has a broad upwardly projecting lug 26 whose top face is in the same plane as the top of the lug 25. (See Figures 6, 7 and 8.)

Secured perpendicular to the face of the baffle 20 is another spacer 27 positioned above the spacer 18. Glued to the outer edge of the spacer 18 is the violin belly 28, which is slightly convexed at its center where it is also glued to the lugs 25 and 26 of the ribs 23 and 24.

The violin belly 28 is also provided with sound holes 29—29 similar to the sound holes 21a. Between the baffle 20 and the baffle 17 is a sound-post 29a glued in position below the bridge 9.

It is thus seen that I have provided a body or sound box of unusually rigid construction, yet possessing superior sound properties. The ribs, baffiles and glue blocks form a strong webbing to take the strain off of the belly and the back, while the ribs transmit the vibrations of the baffles to said belly and back.

The button portion 30 of the neck 3 as shown in Figure 4, is dove-tailed into one of the glue blocks 19. The end 31 of this neck button portion is beveled to provide a tight wedge fit in a dove-tailed slot 32 in the glue block 19, this slot being cut through the belly, baffles and spacers and the outer wall after the case is assembled.

The connection between the button portion 30 of the neck, and the body or resonance box 2 through the glue blocks 19, 19, so strengthens this connection that the tension exerted by the strings will not distort the box.

The lower end of the resonance box 2 is provided with a tail-piece block 33 secured to the top of the baffle 20, outside the wall of the spacer 27, in such a manner as to raise the tail piece cords above the belly 28. The inner ends of these cords pass around a tail pin 35 which projects through the wall 22 into the outer glue block 19. This clearance between the tail piece and the belly greatly improves the tonal qualities of the instrument. (See Figure 3.)

As shown in Figure 2, I have provided another block 36, similar to the block 33, to support a conventional chin rest 37. The latter is rigidly supported by a U clamp 38 whose lower end engages the bead 13 surrounding the back 12 and whose other end is received by holes 39 in the chin rest. The use of this block 36 relieves the belly of the instrument of the varying pressures which would otherwise be exerted upon it through the chin rest to distort the case and dampen the tone vibrations.

Having described my invention, I claim:

1. In a stringed musical instrument, a resonance box having a belly and a back, separate spaces substantially perpendicular to said back at the ends of the box, and spaced baffles projecting between the spacers within the box.

2. In a stringed musical instrument, a resonance box having a belly and a back, separate spacers substantially perpendicular to said back at the ends of the box, spaced baffles projecting between the spacers within the box, and ribs for transmitting the vibrations of the baffles to the belly and the back.

3. In a stringed musical instrument, a resonance box having a belly and a back, separate spacers substantially perpendicular to said back at the ends of the box, a top baffle and a lower baffle, spaced from each other, projecting between said spacers within the box, ribs secured to the back below the lower baffle, and ribs secured to the top baffle between it and the belly for the purpose specified.

4. In a musical instrument, a resonance box having a back, a belly, and strings over the latter, separate spacers substantially perpendicular to said back at the ends of the box, a top baffle and a lower baffle, spaced from each other, projecting between said spacers within the box, and upper and lower ribs secured to the back and to the top baffle in parallelism with said strings, the lower ribs formed with recesses under which the middle portion of said back passes without contacting with said ribs.

5. In a musical instrument, a resonance box having a back, a belly, and strings over the latter, separate spacers substantially perpendicular to said back at the ends of the box, a baffle projecting between the spacers within the box, ribs on said baffle substantially parallel with said strings, and lugs on the ribs contacting at their upper ends with the belly of the instrument.

6. In a stringed instrument a resonance box having a belly and a back, separate spacers substantially perpendicular to said back at the ends of the box, glue blocks secured to said spacers, and a strain-receiving frame within the box between the glue blocks.

7. In a stringed musical instrument, a resonance box having a belly and a back, separate spacers substantially perpendicular to said back at the ends of the box, glue blocks secured to said spacers, a strain receiving frame between the glue blocks, a neck for the instrument, and a button on said neck secured to the glue block at the neck portion of the box.

8. In a stringed musical instrument, a resonance box having a belly and a back, separate spacers substantially perpendicular to said back at the ends of the box, quadrant shaped glue blocks secured to said spacers, a strain receiving frame between the glue blocks, a neck for the instrument, the glue block at the neck portion of the instrument formed with a dove-tailed slot, and a button

on said neck having a beveled end for a wedge tight fit in said dove-tailed slot.

9. A stringed musical instrument body, having a belly and a back, and a side wall perpendicular to the back, between the latter and the belly, a ledge projecting horizontally outward from the rear portion of said wall, and a block on said ledge outside of the body.

10. In a stringed musical instrument, a resonance box having a belly and a back, separate spacers substantially perpendicular to said back at the ends of the box, a pair of spaced baffles projecting between the spacers within the box, said baffles being formed with sound holes, and a sound-post interposed between said baffles in a plane substantially perpendicular to them.

In testimony whereof I have hereunto set my hand this 29th day of June, 1931.

CLARENCE BONEWITZ.