J. E. L. WINECOFF.

VIOLIN.

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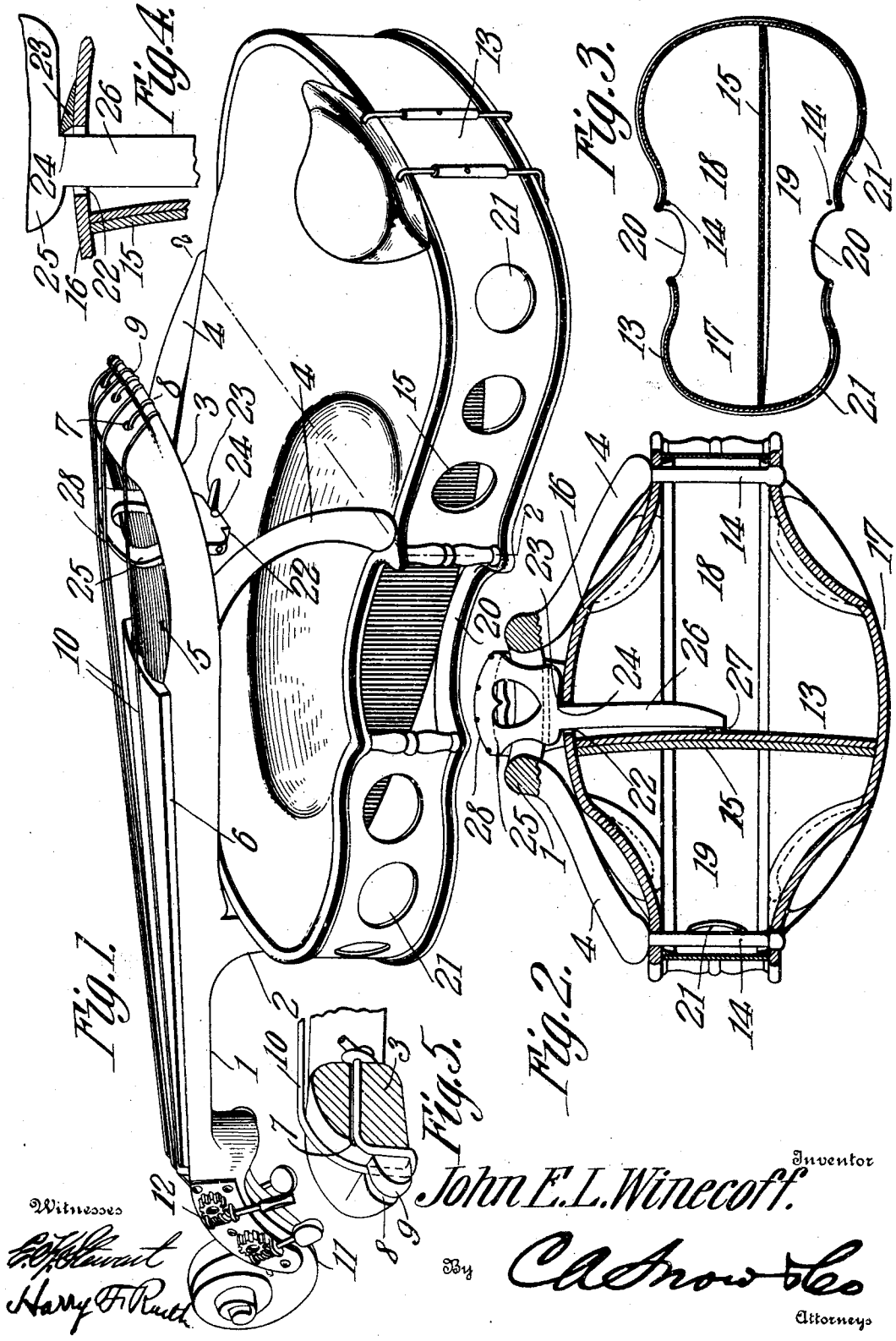
954,487. **Patented Apr. 12, 1910.**



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UNITED STATES PATENT OFFICE.

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VIOLIN.

954,487. Specification of Letters Patent. Patented Apr. 12, 1910.

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To all whom it may concern:

Be it known that I, JOHN E. L. WINECOFF, a citizen of the United States, residing of Whiteville, in the county of Columbus and State of North Carolina, have invented a new and useful Violin, of which the following is a specification.

This invention has relation to violins, and it consists in the novel construction and arrangement of its parts as hereinafter shown and described.

The object of the invention is to provide a violin which involves a vibrating sounding member or a series of such members and a sounding board, and means for transmitting vibrations from the vibratory members to the sounding board without subjecting the sounding board to the stress of the vibratory members. The parts are so arranged that the vibrations of the sounding members are magnified as they are transmitted to the sounding board.

The means for transmitting the vibrations from the sounding members to the sounding board consists of a bridge which is pivotally mounted upon the body of the instrument and which at one end has contact with the sounding members and at its other end has contact with the sounding board. That end of the bridge which has contact with the sounding board is longer than that end of the bridge which has contact with the sounding members, considering the pivotal point of the bridge as the point from which the opposite ends of the bridge extend. The bridge is counterbalanced upon its pivotal point by the tension of the sounding members, and the said sounding members may be so shifted or manipulated as to properly adjust the bridge in its counterbalanced position, whereby its longer end will have proper contact with the sounding board.

The violin is provided with a body which is located below the sounding members and which is divided by the sounding board into resonators of different sizes and which have port holes of different area. The object in so dividing the interior of the body and using the sounding board as a partition is to provide resonators especially adapted to respond to and magnify the tones of high and low pitch, respectively.

In the accompanying drawings,—Figure 1 is a perspective view of the violin. Fig. 2 is a transverse sectional view of the same cut on the line 2—2 of Fig. 1. Fig. 3 is a horizontal sectional view of the body of the same. Fig. 4 is a detail sectional view showing how the bridge is pivotally mounted. Fig. 5 is a detailed view, showing how the strings may be attached to the tail piece of the violin.

As illustrated in the drawings, the instrument consists of the neck 1 which is provided with a shoulder 2 and the tail piece 3. The said neck, shoulder and tail piece are continuous and may be integral. The said neck 1 is also provided with the legs 4, and the lower end of the neck 1 is provided with an opening 5. The finger board 6 is laid upon the upper end portion of the neck 1 in the usual manner commonly employed in the construction of violin necks. The tail piece 3 is provided with the string perforation 7 and string grooves 8 cut in the rib 9.

The strings 10 enter the string grooves 8 and their extremities may be passed through the perforations 7 if desired; from the grooves 8 the strings pass over the upper surface of the tail piece 2 and along the finger board 6 to the head 11 where they are connected in the usual manner with the tension devices 12.

The body 13 is attached at one end to the shoulder 2 of the neck 1 and the legs 4 rest upon the edge of the said body and are provided with posts 14 which pass transversely through the body 13. The sounding board 15 is located in the body 13 and divides the same longitudinally into two compartments or resonators. The said sounding board 15 is preferably concavo-convex with its convex side disposed toward the larger resonator, as the said board does not equally divide the space in the interior of the body 13. The said board is preferably located substantially under the lower base string of the instrument and is preferably made of laminated wood with the grain of the adjacent lamina disposed in different directions for the purpose of strengthening the board without increasing its dimensions. The said board is connected at its upper edge with the anterior wall 16 of the body 13 and at its lower edge with the posterior wall 17 of the said body. The said board 15, however, is so positioned between the walls of the body 13 that it is not subjected to the stress of the strings 10.

As above stated, the sounding board 15 divides the interior of the body 13 into compartments of different volume. These are

designated as the larger resonator 18 and the smaller resonator 19. Each of the said resonators is provided with an opening 20 passed through the side of the body 13, while the smaller resonator 19 is also provided with a series of smaller port openings 21 which also pass through the side of the body 13.

The anterior wall 16 of the body 13 is provided at one side of its middle with an opening 22. The block 23 is attached to the outer surface of the wall 16 at one end of the opening 22. The said block 23 is provided with an edge 24 which is in alinement with the middle of the body 13. The bridge 25 has contact with the strings 10 and is pivotally mounted at a point in alinement with the middle of its upper end portion upon the edge 24 of the block 23. The said bridge is provided with a long end 26 which passes down through the opening 22 into the interior of the body 13 and which is provided at one side with a cushion 27 which has contact with the sounding board 15 substantially at the middle thereof. The upper edge 28 of the bridge 25 is curved or arcuate and the center of the arc described by the said edge is coincident with the pivot upon which the bridge is mounted.

From the above description, it is obvious that the body 13 and the parts contained therein are not subjected to the pressure of the strings 10 while the sounding board 15 through the bridge 29, is subjected to the vibration of the said strings, and as the body is not subjected to the string tension the walls thereof may be made very thin and also the sounding board may be of very thin construction. Thus, the vibratory qualities of the board and body are augmented.

When one of the strings 10 is sounded the vibration thereof is transmitted to the shorter upper end of the bridge 25 which rocks upon the edge 24 of the block 23 and transmits the vibration to the longer end 26, which in turn delivers the vibration to the sounding board 15. The cushion 27 is interposed between the longer end 26 of the bridge and the sounding board 15 to prevent rattling. Thus, the bridge 25 is virtually a lever and receives the vibrations from the string or strings at its power end and delivers the same to the sounding board at its working end. The power end is shorter than the working end. Consequently, the vibrations are magnified when they are delivered to the sounding board. When the board 15 vibrates, sound waves are produced in the resonators 18 and 19 and the lower tones are augmented or amplified by the waves emanating from the resonator 18, while the higher tones are amplified by the waves emanating from the resonator 19. Thus the sounds are increased in volume.

The upper portion of the bridge 25 is located in the opening 5 in the lower end of the neck 1, and in order to properly counterbalance the said bridge 25 upon the edge 24 of the block 23, the strings 10 may be shifted slightly in lateral directions along the upper surface of the tail piece 3 so that the upper portion of the bridge 25 will be subjected to the string pressure at its opposite sides in order that the end 26 thereof may have proper contact or communication with the sounding board 15. It can be readily determined when the bridge 25 is properly counterbalanced upon its pivot support by the quality of the tone of the instrument, for when the bridge is properly adjusted, the tone of the instrument is at its best.

What is claimed is:—

1. A violin comprising a hollow body, tensioned strings located over the body, a sounding board located within the body and dividing the same into resonators, and a bridge directly pivoted upon the body and subjected at its upper portion to pressure from said strings, and having a lower depending portion which enters the body and bears laterally against the sounding-board, said bridge transmitting the string-pressure directly to the hollow body.

2. A violin comprising a hollow body, tensioned strings located over the body, a sounding-board located in the body and dividing the same into resonators, a block located upon the exterior of the body and having an edge, the body having an opening adjacent said block, a bridge pivotally mounted upon the edge of the block and subjected at its upper portion to pressure from said strings, and having a depending lower portion which passes through the opening in the body and bears laterally against the sounding-board.

3. A violin comprising a hollow body, tensioned strings located over the body, a sounding-board located in the body and dividing the same into resonators, a block located upon the body and having an edge, said body having adjacent said block and in its wall an opening, a bridge pivoted upon the edge of said block and subjected at its upper portion to pressure from the strings, said bridge having a depending portion which passes down through the opening in the wall of the body and which, at its lower extremity, bears laterally against the sounding-board.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN EUGENE LEE WINECOFF.

Witnesses:
W. H. Crowell,
F. T. Bizzell.