Feb. 4, 1936. R. DOPYERA 2,029,469

RESONATOR FOR STRINGED MUSICAL INSTRUMENTS

Filed Oct. 11, 1933 2 Sheets-Sheet 1

Fig. 1

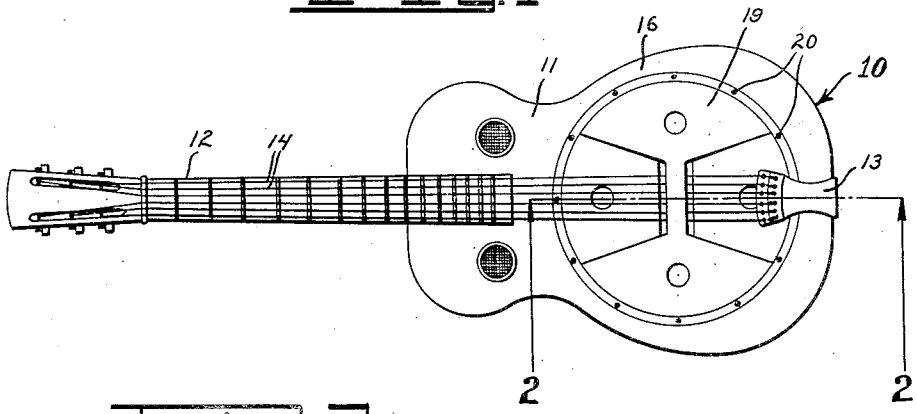


Fig. 2

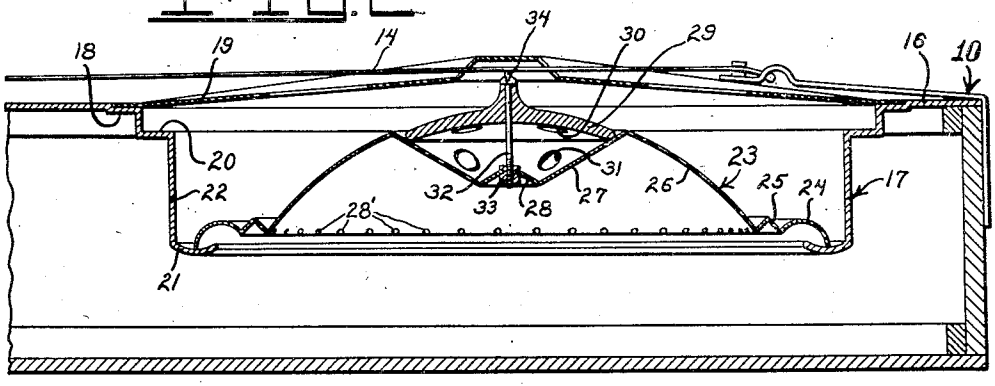


Fig. 4

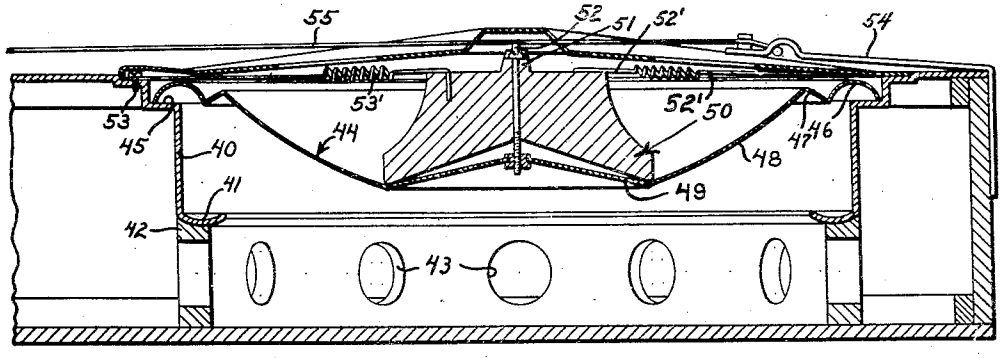
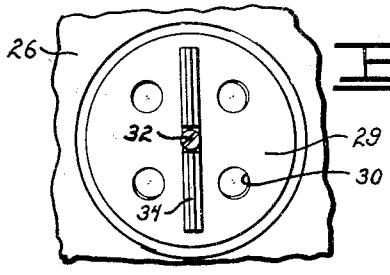


Fig. 3



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Filed Oct. 11, 1933 2 Sheets-Sheet 2

Fig. 5

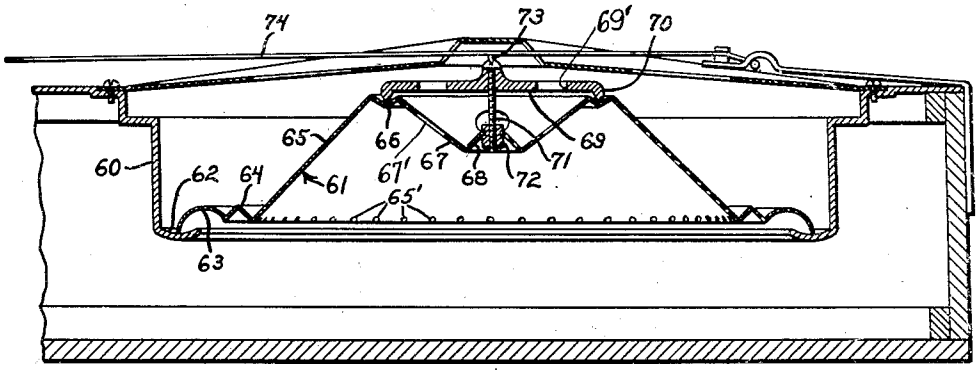


Fig. 6

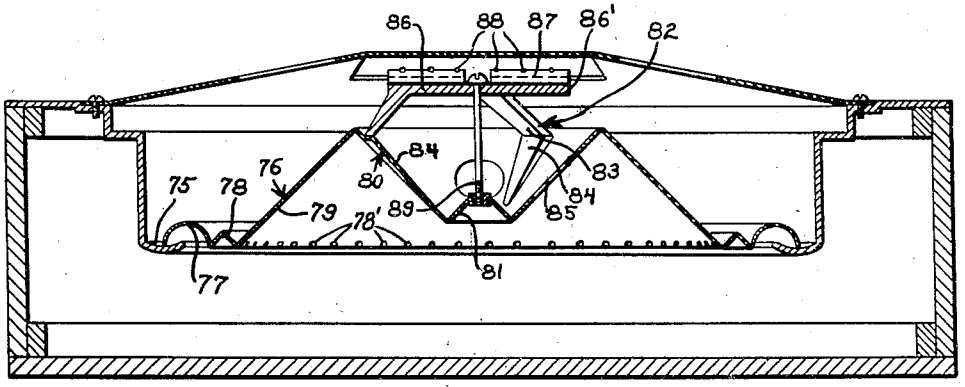


Fig. 7

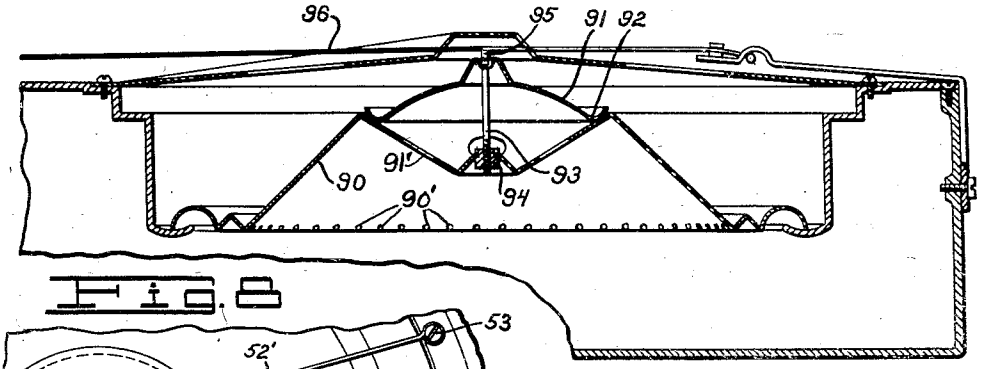
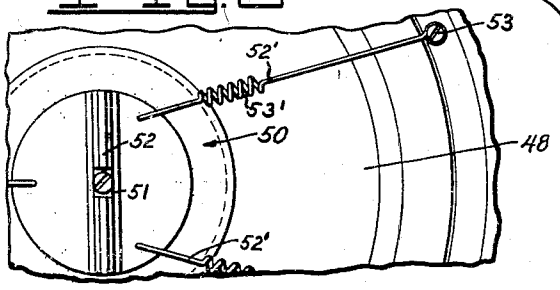


Fig. 8



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RESONATOR FOR STRINGED MUSICAL INSTRUMENTS

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Application October 11, 1933, Serial No. 693,111

11 Claims. (Cl. 84—296)

This invention relates to musical instruments.

The general object of the invention is to provide an improved resonating device for use in stringed instruments.

A further object of the invention is to provide a resonating device for a stringed instrument wherein the resonator is supported in a novel manner.

Another object of the invention is to provide an improved hanger for musical resonators.

An additional object of my invention is to provide an improved resonator for use with musical instruments.

Other objects of my invention will be apparent from the following description taken in connection with the accompanying drawings wherein:

Fig. 1 is a top view of a musical instrument equipped with my invention.

Fig. 2 is a longitudinal section taken on line 2—2, Fig. 1.

Fig. 3 is a fragmentary view showinng the bridge support and associated parts.

Fig. 4 is a view similar to Fig. 2 showing a modification of my invention,

Fig. 5 is a longitudinal view similar to Fig. 2 showing a further modification,

Fig. 6 is a transverse section through a further modification, and

Fig. 7 is a longitudinal view similar to Fig. 2 showing a further modification,

Fig. 8 is a fragmentary detailed plan of the device shown in Fig. 4.

Referring to the drawings by reference characters, I have shown my invention as embodied in a stringed musical instrument indicated generally at 10. As shown the instrument 10 includes a body 11 having a neck 12 thereon and a tail piece 13 which supports strings 14.

The body 11 is open and is covered by a top portion 16 which as shown in Fig. 2 is made of metal and includes a downwardly depending hanger or skirt 17. The metal is shown as depressed as at 18 to provide an annular recess in which a cover member 19 is fitted. This cover member may be secured in place by screws 20. If desired the hanger 17 may be made independently of the top and secured thereto.

The skirt includes an upper shelf 20 and a lower shelf 21 which are integrally connected by a cylindrical portion 22. The lower shelf 21 is curved as clearly shown in the drawings and on this shelf I mount a circular resonator 23 which is also made of metal. This resonator includes a curved peripheral rim 24, the edge of which engages the shelf 21. The rim 24 merges into an inverted V-shaped portion 25 which in turn merges into a downwardly dished portion 26. The portion 26 merges into an upwardly dished portion 27 and in turn the portion 27 merges into a small downwardly dished portion 28. Apertures 28' are arranged in the lower edge of one wall of the V-shaped portion to increase the flexibility thereof and thereby secure a better tone.

On the part 27 I arrange a circular bridge support 29 which is shown as annular and is preferably made of aluminum and which may be a stamping or a casting. The bridge support 29 is apertured as at 30 to decrease the weight thereof and the portion 27 may also be apertured as at 31 to increase the resiliency of this portion 27. The bridge support 29 is connected by means of a bolt 32 with the portion 28 by means of a nut member 33 which is secured in an aperture in the portion 28. The construction is such that by shifting the nut member 33 along the bolt the tension on the portion 27 may be varied.

A bridge 34 is mounted on the bridge support 29 and the playing strings 14 are arranged on the bridge 34.

In Fig. 4 the hanger 40 is similar to that previously described but in this case the shelf 41 is supported on an annular well forming member 42 which is apertured at 43. A resonator 44 is mounted on the upper shelf 45. The resonator 44 includes an edge portion 46, a bead 47, a downwardly dished portion 48 and upwardly dished portion 49 which join in a V-shaped groove 49'. A bridge support 50 which is shown as annular is mounted on the resonator 44. This bridge support includes an upper grooved transverse portion 51 upon which a bridge member 52 is mounted. The bridge support is preferably made of wood and in the top thereof are anchored at one end, brace rods 52'. The other ends of the brace rods are secured by screws 53 to the upper portion of the instrument. The brace rods are preferably pliable steel and include an intermediate spiral spring portion 53' by which the proper tension may be maintained. The instrument includes a tail piece 54 on which strings 55 are secured. These strings engage the bridge member 52.

In Fig. 5 the hanger 60 has a resonator 61 engaging the shelf 62 thereon. This resonator includes a curved peripheral portion 63 which merges into an inverted V-shaped bead 64 and this bead merges into an inverted dish shaped portion 65. Perforations 65' are provided to increase the flexibility thereof and thereby secure a better tone. The dish shaped portion merges into a V-shaped groove 66 thence into a dished portion 67 which is provided with apertures 67' to increase the flexibility thereof and thus secure a better tone and terminates into an inverted dished portion 68. A circular bridge support 69 is provided with apertures 69' to decrease the weight thereof and has an annular depending flange 70 thereon which fits in the groove 66, a bolt 71 engages a nut 72 secured to the portion

68 to hold the bridge supporting member at the proper tension. A bridge 73 and strings 74 are supported on the member 69.

In Fig. 6 the shelf 75 supports a resonator indicated generally at 76 which includes portions 77, 78 and 79 similar to the portions 63, 64 and 65, previously described. The portion 79 merges directly into a dished portion 80 which merges into an inverted dished portion 81. A bridge supporting member which is shown as annular is indicated at 82. This member 82 includes legs 83 shown as three in number which engage the top of ribs 84 also shown as three in number formed on the dished portion 80 of the resonator. The portion 80 is provided with apertures 85 to increase the resiliency thereof and thus improve the tone. The member 82 preferably includes an upper body portion 83 having a periphery 86'. The portion 86 supports a bridge 87 which has strings 88 thereon. A bolt 89 holds the parts assembled.

In Fig. 7, I have shown a further modification wherein the resonator 90 is similar to the resonator 76 just described but is provided with a bridge support 91 which is shown as annular instead of bridge support 82. The resonator 90 is provided with apertures 91' to increase the resiliency thereof. This bridge support 91 is shown as made of stamped metal and has a curved rim 92 which engages the upper portion of the resonator 90 in annular contact. A bolt 93 with a nut 94 thereon holds the bridge support 91 in adjustable position on the resonator 90 and on the member 91, I mount a bridge 95 on which strings 96 are supported.

Perforations 76' and 90' may be provided in the resonators 76 and 90 to increase the resiliency thereof and thereby improve the tone and the various resonators described may be made of a suitable material such as aluminum and may be formed as by spinning.

From the foregoing description it will be apparent that I have invented a novel musical instrument and resonator that can be economically manufactured and which is highly efficient in use.

Having thus described my invention, I claim:

1. A hanger for a stringed musical instrument, said hanger including a depending skirt, said depending skirt having a pair of vertically spaced, resonator engaging portions thereon.

2. A hanger for a stringed musical instrument, said hanger including a depending skirt, said depending skirt having a pair of vertically spaced, coaxial, resonator engaging members thereon.

3. A hanger for a stringed musical instrument, said hanger having a well portion and a pair of annular, coaxial, shelves in said well, each of said shelves facing upwardly.

4. A hanger for a stringed musical instrument, said hanger including a depending portion, said depending portion having a pair of annular spaced shelves thereon, each of said shelves facing upwardly and the lowermost shelf being of less diameter than the upper shelf.

5. A hanger for a stringed musical instrument, said hanger including a depending portion, said depending portion having a pair of annular, coaxial, shelves thereon, each of said shelves facing upwardly and the lowermost shelf being grooved.

6. For use in a stringed musical instrument a hanger, said hanger having a shelf thereon, and a resonator mounted on said shelf, said shelf being upwardly directed and said resonator having a downwardly directed curved flange thereon at the outer periphery thereof, said resonator having an annular V-shaped groove inwardly of the flange and having an upwardly dished portion inwardly of the V-shaped groove, an annular bridge support on the resonator, said support being disposed within the V-shaped groove and including a solid body engaging said resonator in annular contact and a bridge on said support.

7. For use in a stringed musical instrument a hanger including a portion forming a well, said well forming a portion having a shelf thereon, and a diaphragm resonator including a body having a downwardly directed flange engaging the upper face of said shelf, said diaphragm resonator body including a central conical part, and an annular bridge member in annular engagement with said conical part, said bridge member including a central bar adapted to be engaged by the instrument strings and an adjustable tension member connecting said bridge member and diaphragm resonator.

8. For use in a stringed musical instrument a hanger having a shelf thereon, and a resonator mounted on said shelf, said shelf being upwardly directed and said resonator having a downwardly directed curved flange thereon at the outer periphery thereof engaging said shelf, said resonator having an inverted V-shaped groove inwardly of the flange and having an upwardly dished portion inwardly of the inverted V-shaped groove, said upwardly dished portion terminating in a V-shaped groove merging into a downwardly dished portion, said downwardly dished portion terminating in a further upwardly dished portion, an annular bridge support engaging the wall of said second V-shaped groove and fastening means passing through said last mentioned upwardly dished portion and said bridge support.

9. For use in a stringed musical instrument a hanger having a shelf thereon, and a resonator mounted on said shelf, said shelf being upwardly directed and said resonator having a downwardly directed flange thereon at the outer periphery thereof, said resonator having ribs thereon, a spider bridge support having legs thereon engaging said ribs and fastening means passing through said resonator and said bridge support.

10. For use in a stringed musical instrument a hanger and a diaphragm resonator including a body having a flange engaging the hanger, said diaphragm resonator body including a central conical part, a bridge support including a circular base, the bottom of said base engaging said resonator, said bridge support including a top portion, a bridge on said top portion and a plurality of resilient means to brace said bridge support.

11. For use in a stringed musical instrument, a hanger, said hanger having a shelf thereon, and a resonator mounted on said shelf, said shelf being upwardly directed and said resonator having a downwardly directed flange thereon at the outer periphery thereof, said resonator having a groove inwardly of the flange and having a dished portion inwardly of the groove, a bridge support on the resonator, said support including a solid non-metallic body engaging said resonator and a bridge on said support.

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