

Feb. 7, 1933.

R. DOPYERA

1,896,484

MUSICAL INSTRUMENT

Filed Feb. 1, 1932

2 Sheets-Sheet 1

FIG. 1

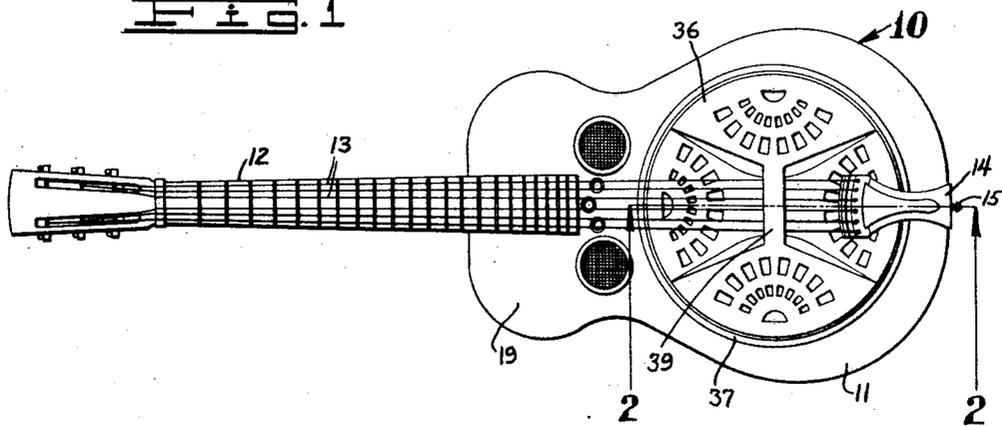


FIG. 2

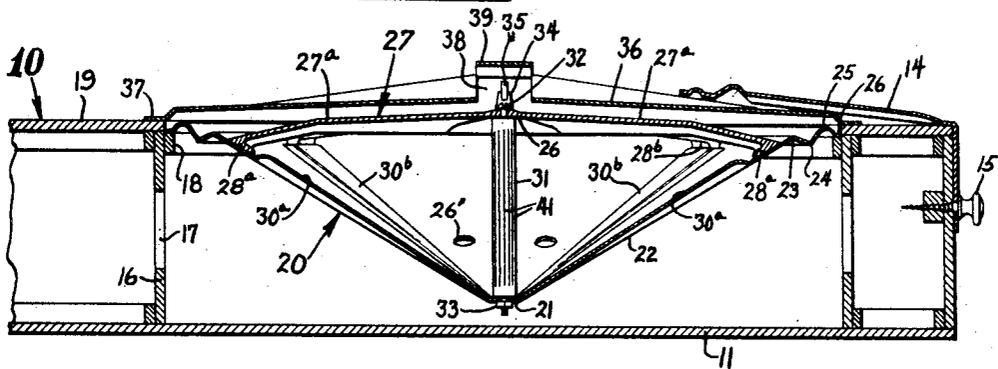


FIG. 4

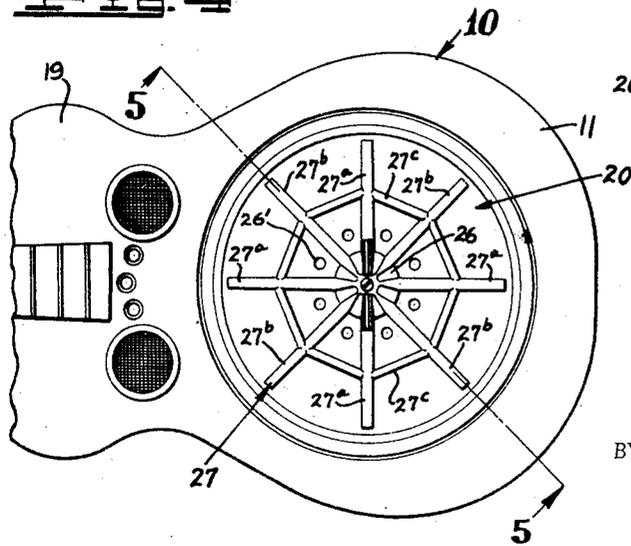
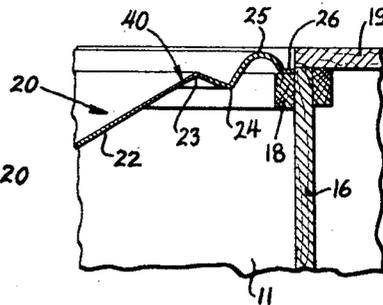


FIG. 3



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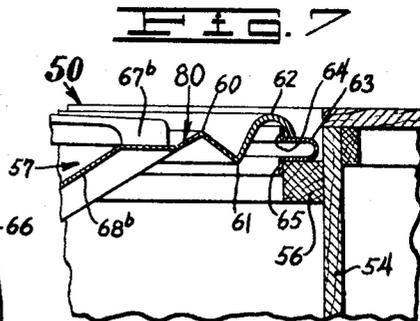
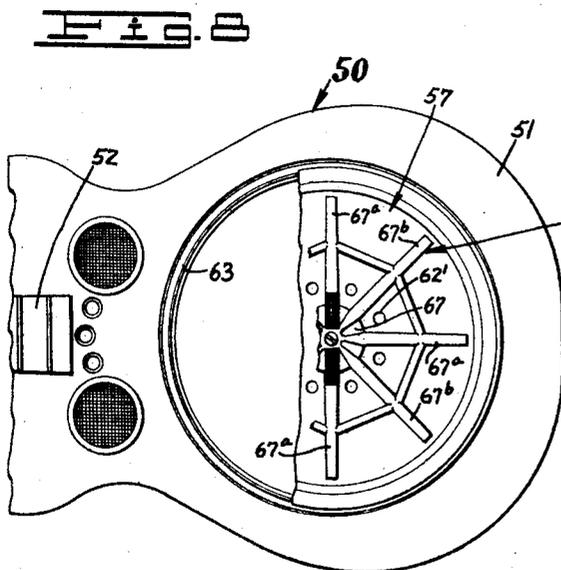
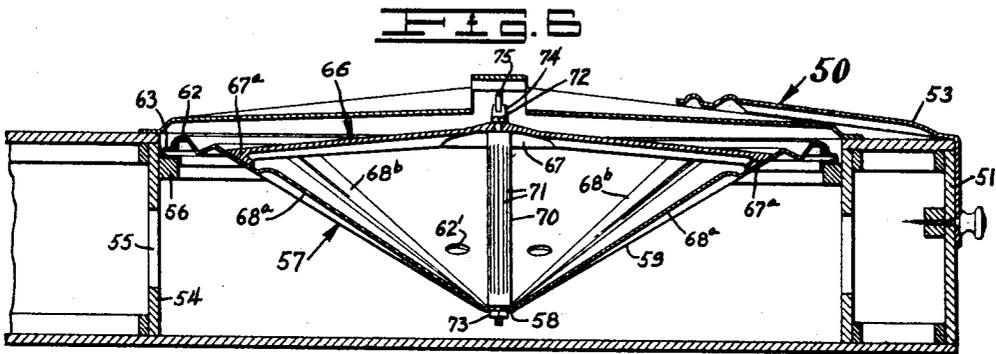
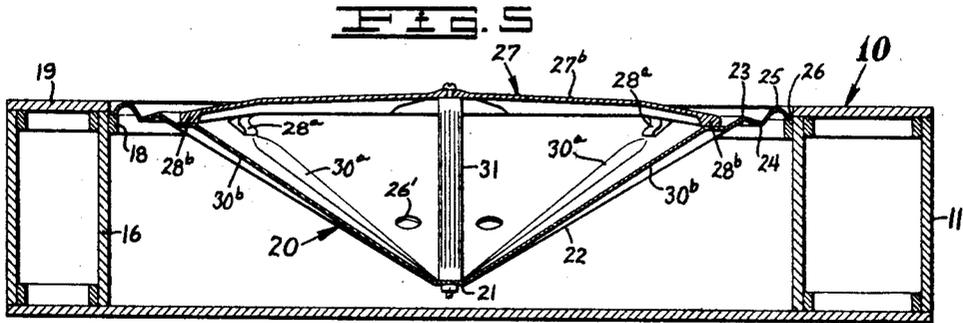
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MUSICAL INSTRUMENT

Filed Feb. 1, 1932

2 Sheets-Sheet 2



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MUSICAL INSTRUMENT

Application filed February 1, 1932. Serial No. 590,093.

This invention relates to musical instruments.

The general object of the invention is to provide a musical instrument which includes a novel resonator.

A further object of the invention is to provide a musical instrument including strings and a supporting bridge and wherein the instrument is provided with a well in which a novel resonator is supported and wherein a novel spider engages the resonator and the bridge.

A further object of the invention is to provide a novel resonator for use in a musical instrument.

An additional object of the invention is to provide a musical instrument having a resonator therein and wherein the thickness of the metal constituting the resonator varies at different parts of the resonator to thereby improve the tone.

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

Fig. 1 is a top plan view of a musical instrument embodying the features of my invention.

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

Fig. 3 is an enlarged fragmentary sectional detail.

Fig. 4 is an enlarged fragmentary top plan view of the guitar with the cover removed.

Fig. 5 is an enlarged section taken on line 5—5, Fig. 4.

Fig. 6 is a view similar to Fig. 2 showing a modified construction.

Fig. 7 is an enlarged fragmentary sectional detail of the device and

Fig. 8 is a top plan view of the device shown in Fig. 6 with the cover removed and with other parts broken away.

Referring to the drawings by reference characters I have shown my invention as embodied in a musical instrument indicated at 10. This instrument includes a body 11, a neck piece 12, strings 13 and a tail piece 14. The tail piece 14 may be secured in place by a screw 15, or in any other suitable manner.

Arranged within the body 11, I show a cylindrical wall member 16 which provides a well. This wall member is provided with apertures 17 as shown. Adjacent the top of the cylindrical wall member 16 I provide an annular ring 18 which is disposed adjacent the top 19 of the instrument.

Supported upon the ring 18, I show a resonator indicated generally at 20. This resonator is substantially conical in shape and includes a lower head 21, an inclined wall 22 which merges into the bead 23. The bead 23 merges into a second bead 24 and this bead 24 in turn merges into a bead 25 which terminates in an annular flange 26 which engages the ring 18. In the wall 22 of the resonator I preferably provide a plurality of aperture 26'.

Mounted on the resonator 20 I show a spider indicated generally at 27. This spider includes a central portion 26 from which radial legs 27^a and 27^b project. All of the legs are arcuate in cross section and the legs 27^a terminate in enlarged downwardly directed feet 28^a, as shown in Fig. 2. The legs 27^b terminate in feet 28^b. The bottom of the feet 28^a correspond to the taper of the body 22 of the resonator and these feet have their lower ends spaced from the tops of ribs 30^a.

The feet 28^b, as shown in Fig. 5, engage the top of ribs 30^b. The ribs 30^a and 30^b are preferably pressed from the metal constituting the resonator and as shown are of the greatest depth nearest the spider and decrease in depth towards the head 21. The legs 27^a and 27^b are connected by webs 27^c which are arcuate in cross section. In certain instances I may desire to make all of the feet like the feet 28^a and all of the ribs like the ribs 30^a, or I may make all of the feet like the feet 28^b and all of the ribs like the ribs 30^b.

The head 21 is connected by a hollow spacer 31 with the bridge by means of a bolt 32 which has a nut 33 thereon.

The spider includes a boss 34 which projects upwardly therefrom and is recessed to receive a bridge 35 against which the strings 13 engage.

The well 16 is closed by a cover 36 which includes a flange 37 in engagement with the

top 19 of the musical instrument. The strings pass through an aperture 38 provided by a stuck up portion 39 on the cover.

In order to improve the tone, I preferably
 5 make the resonator of metal or other material, the thickness of which varies radially. As shown the variation in thickness begins at the point 40 indicated by the arrow in Fig. 3 and the thickness increases from this point
 10 towards the head 21 gradually and also increases from the point 40 outwardly towards the flange 26 more rapidly than it increases inwardly.

The spacer 31 is preferably slitted longitudinally as shown at 41 and these slits increase the resiliency of the tube and thus act in conjunction with the resonator to increase the tone.

In Figs. 6, 7 and 8 I show a modification
 20 of my invention as embodied in an instrument 50 which includes a body 51, a neck piece 52, and a tail piece 53. Arranged within the body 51 I show a cylindrical wall member 54 which provides a well which is provided with apertures 55.

Spaced from the top of the cylindrical wall member 54 I provide an annular ring 56, and supported upon this ring, I show a resonator indicated generally at 57. This resonator is
 30 substantially conical in shape and includes a lower head 58, and an inclined wall 59 which merges into the bead 60. The bead 60 merges into a second bead 61 and this bead 61 merges into rolled edge 62. In the wall 59 of the resonator I preferably provide a plurality
 35 of apertures 62'.

The edge 62 engages the top of a U-shaped resilient metal ring 63, the lower edge of which engages the ring 56. The ring 63 has
 40 top and bottom flanges 64 and 65 to give it rigidity. Mounted on the resonator 57, I show a spider indicated generally at 66. This spider includes a central portion 67 from which radial legs 67^a and 67^b project. The
 45 legs 67^a engage the resonator 57 above the ends of ribs 68^a while the legs 67^b engage the ends of ribs 68^b. It will be understood that the legs 67^a and 67^b are similar to the legs 27^a and 27^b previously described and that
 50 the spider herein described and the resonator parts associated with this spider are similar to those described in connection with Figs. 1 to 5 previously described.

The head 58 is connected to the bridge by
 55 a hollow spacer 70 which is slitted as at 71. The spacer is held in place by means of a bolt 72 which has a nut 73 thereon.

The spider includes a boss 74 which projects upwardly therefrom and is recessed to receive a bridge 75 against which the strings
 60 engage.

The well 16 is closed by a cover which is similar to the cover 36 previously described.

In order to improve the tone, I preferably
 65 make the modified resonator of material, the

thickness of which varies. As shown the variation in thickness begins at the point 80 indicated by the arrow in Fig. 7 and the thickness increases from this point towards the head 58 gradually and also increases from the point 86 outwardly towards the flange bead 62 more rapidly than it does inwardly.

From the foregoing description it will be apparent that I have provided an improved musical instrument which can be economically manufactured, which is highly efficient in use and which is sweet toned.

Having thus described my invention, I claim:

1. A musical instrument comprising a hollow body having a well, an annular ring arranged in said well, and a conical metallic resonator supported on said ring and directed downwardly, said resonator having radial ribs thereon, said ribs being of decreasing
 85 depth downwardly.

2. A stringed musical instrument comprising a body having a resonator thereon, radial ribs on said resonator, and a spider engaging said resonator and said ribs.

3. A musical instrument comprising a body having strings supported thereon, a resonator mounted in the body and having its central portion downwardly extending, said resonator having non-circumferential ribs thereon and a bridge on said resonator between said strings and said resonator.

4. A musical instrument comprising a body having a supporting portion thereon, a resonator having a peripheral part engaging said support, said resonator being made of metal, the thickness of said metal varying inwardly from the peripheral part.

5. A musical instrument comprising a body having a supporting member, a resonator engaging said support, said resonator having a plurality of ribs therein, said ribs being of increasing depth in one direction.

6. A musical instrument comprising a body, having a resonator mounted thereon, strings on said body, ribs on said resonator, a bead on said resonator, a spider engaging said resonator and free from engagement with said bead and means engaging said spider and strings for communicating vibrations from the strings to the resonator.

7. A stringed musical instrument comprising a body having a resonator mounted thereon, strings on said body, radial ribs on said resonator, a spider engaging said ribs and means engaging said spider and strings for communicating vibrations from the strings to the resonator.

8. A musical instrument comprising a body having a supporting portion therein, a resilient member on said portion, a resonator engaging said resilient portion, a spider engaging said resonator, strings supported on said body and means engaging said strings
 130

and said spider to transfer vibrations from strings to said resonator.

9. A musical instrument comprising a body having a well therein, a ring in said well to form a ledge, a resonator having on its base a peripheral flange directly engaging said ledge, ribs on said resonator, a spider engaging said resonator between said bead and ribs, strings operatively supported over the top of said body and means engaging said strings and said spider to transfer vibrations from strings to said resonator.

10. A musical instrument, a body having a well therein, a ring in said well to form a ledge, a resonator having on its base a peripheral bead mounted on said ledge, ribs on said resonator, a spider engaging said resonator between said bead and ribs, strings operatively supported over the top of said body and means engaging said strings and said spider to transfer vibrations from strings to said resonator.

11. A musical instrument comprising a body having a supporting member therein, a resonator supported on said support, said resonator having a plurality of ribs therein, said ribs being of increasing depth in one direction, a spider including spaced legs having feet, a post connecting the said resonator and said spider, a bridge on said spider and means to hold strings in tension against said bridge whereby the vibrations of said strings will be transferred through said spider to said resonator.

12. A musical instrument comprising a hollow body having a well, a metallic resonator supported in said well said resonator having radial ribs thereon, said ribs being of decreasing depth downwardly, a spider engaging said resonator and including legs and a central portion, said legs having feet thereon engaging said resonator, strings stretched over said body, and a bridge engaging the upper portion of said resonator at its inner side and said strings for holding the strings and the resonator in tension whereby vibrations may be transmitted from the strings to the resonator.

13. A resonator including a body having a beaded peripheral portion and having a conical central portion, spaced ribs on said body, said ribs being of decreasing depth in one direction and said ribs terminating short of said bead.

In testimony whereof, I hereunto affix my signature.

RUDOLPH DOPYERA.