A. D. GROVER.

BANJO CONSTRUCTION.

APPLICATION FILED JAN. 22, 1919.

1,371,760.

Patented Mar. 15, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

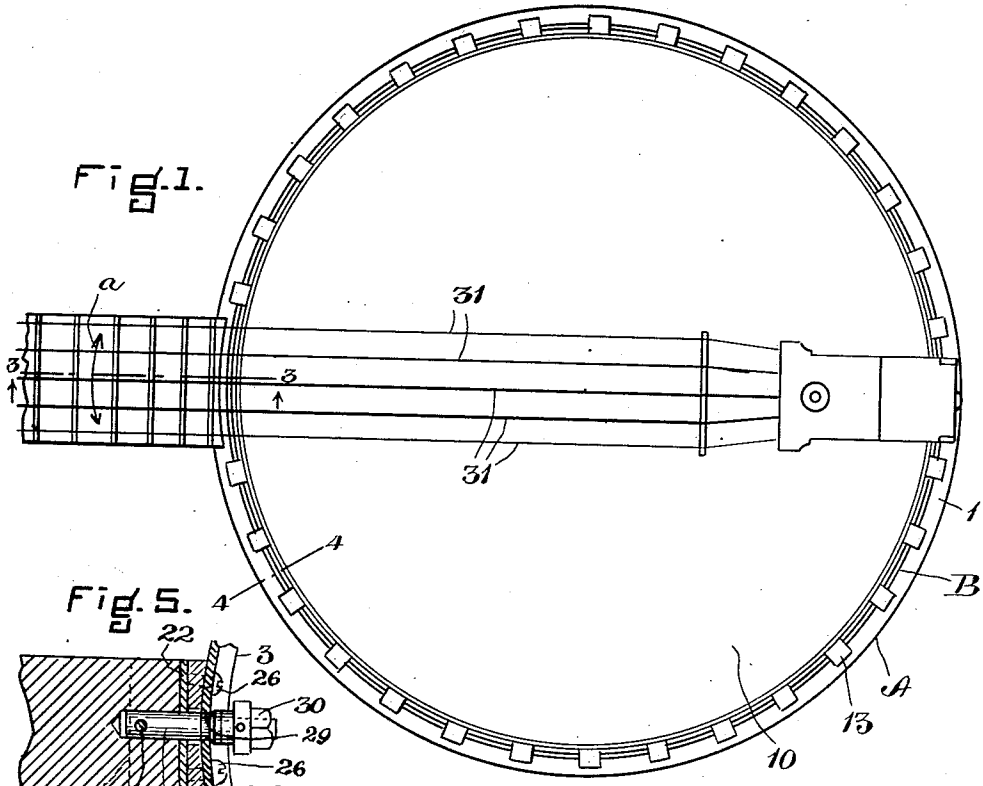


Fig. 5.

Fig. 2.

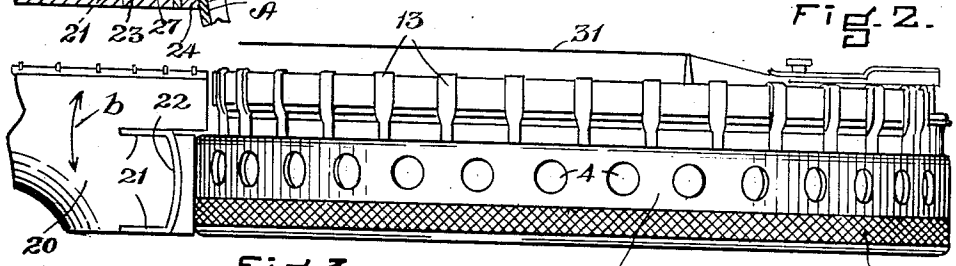


Fig. 3.

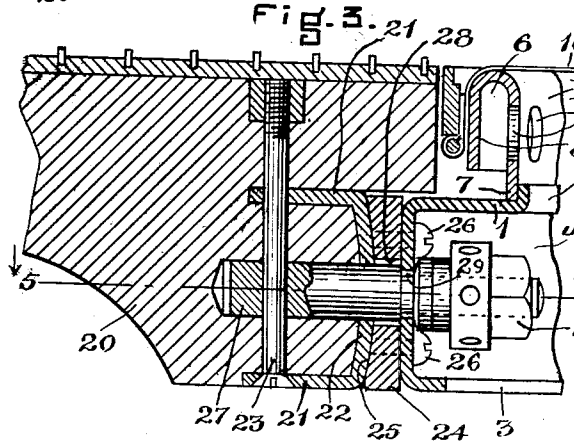
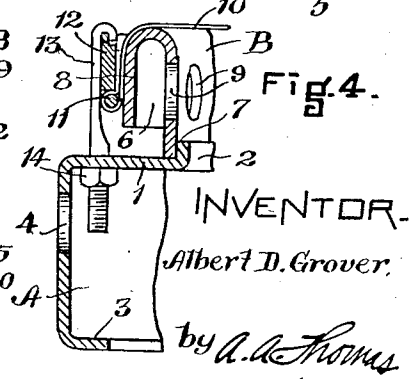


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 7.

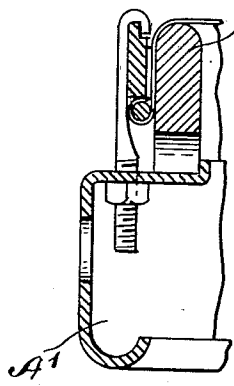


Fig. 6.

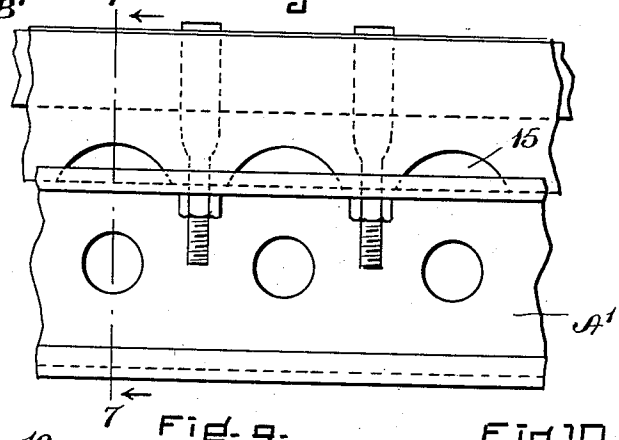


Fig. 8.

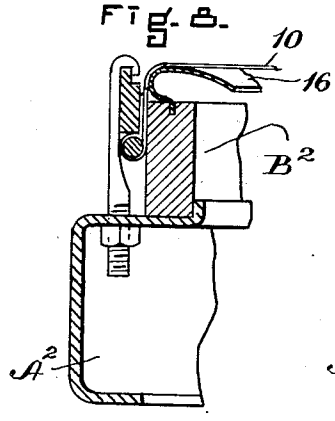


Fig. 9.

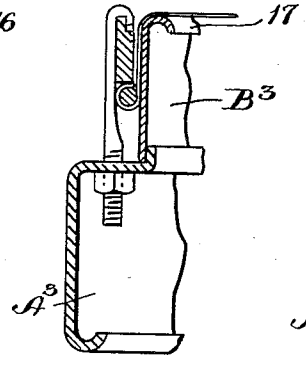


Fig. 10.

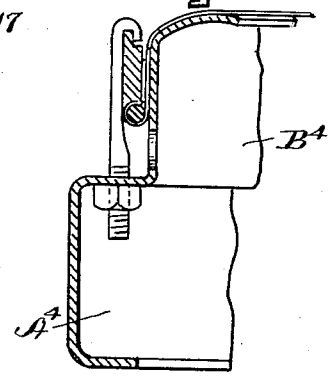


Fig. 12.

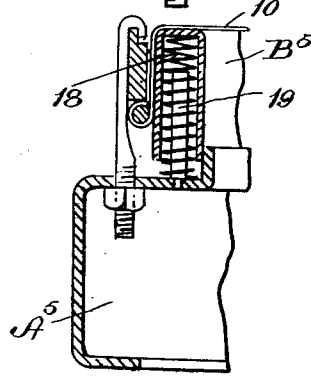
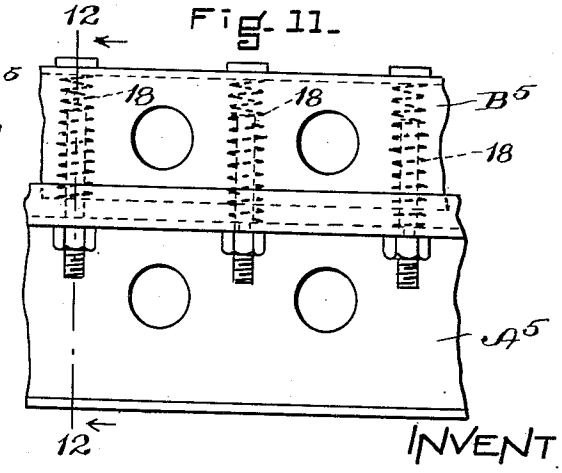


Fig. 11.



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BANJO CONSTRUCTION.

1,371,760. Specification of Letters Patent. Patented Mar. 15, 1921.

Application filed January 22, 1919. Serial No. 272,450.

To all whom it may concern:

Be it known that I, ALBERT D. GROVER, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented new and useful Improvements in Banjo Constructions, of which the following is a specification.

My invention is for a new construction of banjo and embodies several features of novelty. One of the principal objects of my invention is to provide a rim in which the usual outside brackets and nuts, so objectionable in prior banjo constructions, are eliminated, whereby the outer periphery of the base or larger section of the rim is left smooth. My new rim is furthermore very light and strong, and may be manufactured at low cost. Also, in its preferred form, the rim is provided with an annular sound chamber through which the tones pass from the interior of the rim to the outside.

Another feature of my new banjo is the adjustable connection between the neck and the rim. This connection permits relative adjustment of the rim and neck in two directions, so that proper alinement between the neck and the strings may always be secured.

The objects and advantages of my invention will become apparent from a detailed description of the accompanying drawings, which illustrate several forms of banjo construction embodying the various features of my invention.

In these drawings—

Figure 1 is a top plan view of a banjo constructed in accordance with my invention, a portion of the neck being broken away;

Fig. 2 is a side view of the construction shown in Fig. 1;

Fig. 3 is an enlarged cross-section on line 3—3 of Fig. 1, showing the adjustable connection between the rim and the neck;

Fig. 4 is an enlarged cross-section on line 4—4 of Fig. 1;

Fig. 5 is a cross-section on a reduced scale on line 5—5 of Fig. 3, looking downwardly;

Fig. 6 shows an inside view of a portion of a rim of modified construction, in which the upper section is of wood or other non-metallic tone-conducting material;

Fig. 7 is a cross-section on line 7—7 of Fig. 6;

Fig. 8 shows a cross-section through another form of rim, in which the wooden top section carries a head-supporting ring of metal;

Fig. 9 is a cross-section through still another form of rim, in which the upper section is made of metal and bent inwardly at the top to support the head;

Fig. 10 shows in cross-section a rim formed of a single piece of metal.

Fig. 11 is an inside view of a portion of a rim in which the two sections are yieldably connected, so as to keep the head taut at all times; and

Fig. 12 is a cross-section on line 12—12 of Fig. 11.

I will first describe the embodiment shown in Figs. 1 to 5, which at the present time I regard as my preferred form.

The rim of my new banjo, as illustrated in those figures, comprises a lower or base section A, and an upper or head-supporting section B.

In the preferred construction, these sections are formed of metal,—such as, aluminum, bell metal, or other suitable composition, compound or alloy of metal.

As will be seen from Figs. 3 and 4, the base section A is of greater diameter than the upper section B. The object of this will presently become clear. The section A has an annular flange 1 which projects beyond the upper or head-supporting section B and is approximately parallel with the head. At its inner end the flange 1 turns upwardly to form a retaining shoulder 2. At the bottom, the base section A is preferably formed with an inwardly turned flange 3, thereby materially increasing the strength of the rim. I may in some cases provide the outer periphery of the section A with sound outlets or openings 4, but this is not essential if the section B is provided with such openings. Also, if desired, a portion of the outer surface of the section A may be roughened, as indicated at 5 in Fig. 2, to prevent slipping of the rim when the instrument is held in playing position.

The upper or head-supporting section B, as shown in the embodiment of Figs. 1 to 5, is approximately U-shaped in cross-section to provide an annular sound chamber 6, as best shown in Figs. 3 and 4. The lower or inner edge 7 of the section B rests upon the flange of the base section A and is in snug contact with the upstanding shoulder 2 of the base section A. In this way the two

sections are firmly connected together. The outer flange 8 of the section B terminates at a short distance from the flange 1 of the base section A, so as to provide an outlet for the sound from the annular chamber 6. Suitable openings 9 are formed in the inner wall of the upper section B to establish communication between the interior of the rim and the sound chamber 6.

The usual head 10 of parchment is stretched over the top of the upper section B, which I have for that reason called the head-supporting section. The usual flesh-hoops 11 and hoop 12 are employed in connection with the head 10. Over the top of the hoop 12 are hooked the so-called pulling-down wires or hooks 13. At their lower ends these hooks are screw-threaded and pass through openings in the flange 1 of the base section A, as best shown in Fig. 4. By means of nuts 14 the hooks 13 are adjusted and securely held in an adjusted position to keep the head 10 taut.

The foregoing construction, simple as it is, produces a rim of great strength. The inward pull or pressure exerted by the hooks or bracket wires 3 on the head-supporting section B is safely sustained by the base section A by reason of the fact that the head-supporting section rests on the flange 1, which thus acts as a direct support or thrust-bearing for the section B. And this is true whether the two sections are separate, as shown in Fig. 4, or made in one piece, as shown in Fig. 10, to be described later.

As seen from Figs. 1 and 4, the hooks 13 are all arranged inside of the outer surface or periphery of the base section A. When the banjo is held in playing position, it is the base section A which rests against the knee of the player hence, the hooks 13 do not come into contact with the player's clothes. In the old style of banjo construction, where the hooks and brackets are essentially on the outside of the rim, there is the objection that the hooks and brackets necessarily come into contact with the clothes of the player and have been known very frequently to injure the same. This is the common experience of banjo players. My new rim construction entirely obviates this objectionable feature of the old banjo.

Also, in the old forms of banjo, the rim must be held partly away from the body of the player in order to permit the sound to escape from the inside of the rim. Otherwise, the tones will be muffled or stifled. Now, in the use of my new form of banjo, the rim may be held closely and firmly against the body of the player, because the tones escape through the outlets 9 (and 4, if the latter are provided, which is not necessary).

As compared with prior banjo constructions, the banjo of my invention produces a tone of greater loudness and more ringing quality. I attribute this, in part at least, to the sound chamber 6 and especially to the larger base section A. By virtue of my construction, an 11-inch head may be placed on a 12-inch rim. It is well known that the larger the rim of a banjo, the louder are the tones which it is capable of producing. The usual makes of banjo have 11-inch heads. There are very few banjos with 12-inch heads, because the large calf-skin required for such a banjo is difficult to keep taut, especially in damp weather. By virtue of the enlarged base section A in my new rim, an 11-inch head on the upper section B produces an extra loud tone effect.

In the modification shown in Figs. 6 and 7, the base section A^1 is formed of metal, while the upper or head-supporting section B^1 is made of wood or other non-metallic tone-conducting material. The section B^1 is provided with sound outlets 15. In this form of rim construction, the tone, while loud, is somewhat modified and more "woody" (as a banjo player would call it) than the tone produced by the construction shown in Figs. 1 to 5.

In the modification shown in Fig. 8, the rim comprises the base section A^2 of metal and the upper section B^2 of wood or other non-metallic tone-conducting material. The section B^2 carries a metal ring 16 over which the head 10 is stretched. This construction produces a louder tone than the construction shown in Figs. 6 and 7.

In Fig. 9, I have shown another modified form of rim, which comprises a base section A^3 and an upper section B^3. Instead of being spun outwardly at the top like the section B in Fig. 4, the section B^3 is spun inwardly to form a flange 17. As a consequence, the base section A^3 may be made smaller, as compared with the form of construction shown in Figs. 3 and 4. The modification of Fig. 9 is thus a cheaper construction than the one shown in Figs. 1 to 5.

A still cheaper form of construction is illustrated in Fig. 10, where the sections A^4 and B^4 are integral, being spun or drawn up from a single piece of thin metal, or otherwise made in one piece.

In Figs. 11 and 12, the base section A^5 and the upper section B^5 are yieldably connected together by means of springs. In the broad aspect of this feature of my invention, the yieldable spring connection between the two sections of the rim may be carried out in any practical way and I have shown merely one way in the drawings by way of illustration. The upper section B^5 is approximately U-shaped in cross-section, similar to the section B of Fig. 4, and a suitable number of coil springs 18 are arranged within the chamber formed by the outer and inner walls of the U-shaped section B^5. The

base section A^5 may be provided with steady pins 19 for the springs 18. The normal tendency of the springs 18 is to force the upper section B^5 away from the base section A^5. As a result, the head 10 is automatically kept taut in all kinds of weather. When the head expands, as in damp weather, the springs 18 urge the upper section B^5 outwardly and thus automatically take up the slack in the head. When the head subsequently shrinks, as in dry weather, the springs 18 give way and allow for such shrinking.

There remains to be described the adjustable connection between the rim and the neck of the instrument. This connection is best shown in Figs. 3, 4 and 5. In the base portion 20 of the neck is secured a bearing plate of metal, comprising a pair of extensions 21 and a convex bearing surface 22. An anchor bolt 23, or other similar member, is mounted in the base of the neck and passes through apertures in the extensions 21 of the bearing plate. To the base section A of the rim is secured a bearing member 24 having a concave bearing surface 25 shaped to come into close and firm contact with the convex bearing surface 22 of the neck. This is clearly shown in Fig. 3. The member 24 is secured to the rim by any suitable means, such as the bolts 26. A bolt or similar member 27 is rigidly secured in the base portion 20 of the neck, the bolt 23 preferably passing through the bolt 27, whereby the latter is firmly anchored in position. The bolt 27 projects through the opening 28 of the bearing member 24 and through the opening 29 in the base section A of the rim. The opening 28 is slightly larger than the diameter of the bolt 27 at that point, while the opening 29 is elongated in the direction of the circumference of the base section A, for a purpose to be presently described. The outer or free end of the bolt 27 is screw-threaded and provided with the nut 30 by means of which the rim and neck are rigidly clamped together. To adjust the position of the neck on the rim, it is only necessary to loosen the nut 30, move the neck into the desired position, and screw the nut 30 home again. The complemental bearing surfaces 22 and 25 and the elongated slot 29 permit adjustment of the neck relatively to the rim in two directions, laterally and longitudinally. By a lateral adjustment of the neck I mean an adjustment in one or the other of the directions indicated by the double-headed arrow *a* in Fig. 1. The enlarged opening 28 in the bearing member 24 and the elongated slot 29 in the base section A permit this lateral adjustment of the neck to bring it into proper position with respect to the strings 31. By a longitudinal adjustment of the neck I mean an adjustment up and down, as viewed in Fig. 2 and as indicated by the double-headed arrow *b* in that figure. This longitudinal adjustment is occasionally required to bring the upper surface of the neck into proper position as regards the strings. Due to their great tension the strings exert an immense pulling force on the outer end of the neck, thus gradually pulling the same out of normal position. By virtue of the above-described connection, it is a simple matter to adjust the neck back into proper playing position.

Although I have herein shown and described certain specific constructions, I would have clearly understood that I have done so merely by way of illustration, and not as a limitation upon my invention. It is obvious, as far as the basic features of my invention are concerned, that changes and modifications may (and probably will) occur to those skilled in the art, without departing from the scope of my invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a banjo, or the like, a rim comprising a base section and a head-supporting section, said base section having an annular flange projecting beyond the other section, said head-supporting section resting on said flange, whereby said flange acts as a direct support or thrust-bearing for said head-supporting section, said flange being at its inner end turned outwardly to provide an annular retaining shoulder which engages the edge of the head-supporting section, the hooks for the head passing through said flange to the inside of the base section, said hooks also holding the two sections together.

2. In a banjo or the like, a metal rim having an annular flange approximately parallel with the head, the hooks of the head passing through said flange, a cylindrical base portion extending integral from the outer edge of said flange, so that said hooks lie within the periphery of said base portion, and a head-supporting section clamped against said flange by said hooks.

3. In a rim for banjos, and the like, a one-piece metallic member consisting of a cylindrical base portion, a flange extending inwardly from said base portion in a plane approximately at right angles to the axis of said cylindrical base portion, said flange being provided with openings to receive the hooks for the head, and an annular shoulder extending outwardly from the inner edge of said flange, substantially as and for the purposes set forth.

4. In a banjo, or the like, a rim comprising a base section and a head-supporting section, said first section being of greater diameter than said second section and having an annular flange projecting beyond the

second section, the hooks for the head passing through said flange to the inside of said base section, said head-supporting section having spaced walls to provide an annular sound chamber communicating with the interior of the rim and open to the outside.

5. In a banjo, or the like, a rim comprising a base section and a head-supporting section, said first section being of greater diameter than said second section and having an annular flange projecting beyond the second section, the hooks for the head passing through said flange to the inside of said base section, said head-supporting section being formed of metal and approximately U-shaped in cross-section, so as to provide an open sound chamber communicating with the interior of the rim.

6. In a banjo, or the like, a rim comprising a head-supporting section approximately U-shaped in cross-section to provide a sound chamber closed at the top and open at the lower end to the outside, there being openings between said chamber and the interior of the rim, and a base section to which said head-supporting section is connected, said base section being of greater diameter than said head-supporting section.

7. In a banjo, or the like, a rim comprising a base section provided with an outwardly extending annular shoulder, a head-supporting section having its inner edge in slidable engagement with said shoulder, and springs arranged outside of said shoulder for yieldably connecting the sections together, whereby slackness in the head is automatically taken up, said shoulder acting as a guide for the movements of the head-supporting section.

8. In a banjo, or the like, a rim comprising a base section and a head-supporting section, said first section being of greater diameter than said second section and having an annular flange projecting beyond the second section, the hooks for the head passing through said flange to the inside of said base section, said head-supporting section being provided with an annular open sound chamber, and spring means arranged between said flange and said chamber for adjustably supporting said head-supporting section on said base section, whereby the head is automatically kept taut at all times.

9. In a banjo or the like, a rim comprising a base section and a head-supporting section, said first section being of greater diameter than said second section and having an annular flange projecting beyond the second section, the hooks for the head passing through said flange to the inside of said base section, said head-supporting section having an annular recess closed at the top, and springs arranged between said flange and the top of said recess for adjustably supporting said head-supporting section on said base section, whereby the head is automatically kept taut at all times.

In witness whereof I hereunto subscribe my name this 21st day of January, 1919.

ALBERT D. GROVER.