This invention relates to banjos or similar stringed instruments, and has for one object to provide a device by which the strings may all be tensioned at once, as for raising or lowering the tone.

Another object of the invention is to provide means in a device of this kind, whereby the string tension may be stiffened or eased, to suit the individual player, by raising or lowering all of the strings simultaneously, relative to the frets and body thereby changing the angle and height of the strings relative to the keyboard.

Another object of the invention is to provide an apparatus or device of this kind by which the neck of the instrument may be pivoted.

Other objects of the invention are to improve generally the simplicity and efficiency of such devices and to provide a device of this kind which is readily put in order, economical to manufacture and easy to operate and which will not get out of order.

Still other objects of the invention will appear as the description proceeds; and while herein details of the invention are described, the invention is not limited to these since many and various changes may be made without departing from the scope of the invention as claimed.

The inventive features for the accomplishment of these and other objects are shown herein in connection with an improved banjo, briefly stated, comprises a banjo body having a neck pivoted to said body and screw means for gradually adjustably moving said neck toward and from the plane of the body.

In the accompanying drawing, showing by way of example, one of many possible embodiments of the invention,

Fig. 1 is a fragmental longitudinal vertical sectional view, partly in elevation, showing the banjo body and neck:

Fig. 2 is a fragmental bottom plan, partly in section, of the same; and

Fig. 3 is a side elevation of the banjo.

Though this invention is not limited to any particular type of banjo body or stringed instrument, it is here shown in combination with a banjo body comprising a rim 5 on which is mounted a metal ring 6 having inwardly extending lugs 8 terminating on said rim, the upper part of the ring comprising a tone band 9 spaced from said rim, to form sound outlets 10. Bolts 11 are passed through said lugs and rim and have lower heads, not shown.

Around the rim is disposed an outer casing 15 having a sound reflecting vertical outer portion 16 spaced from said band and rim, an inwardly disposed intermediate ledge 17, a downwardly extended portion 18 joining the inner part of said ledge, and an inwardly disposed lower horizontal portion 19 spaced 20 from the rim and provided with counterbored holes receiving said bolts and heads. Spacing collars 22 on said bolts between said rim and horizontal portion hold the rim and portion 19 spaced apart and form large sound passages 23. A vellum 25 disposed over said band 9 terminates in a vellum ring 26 engaged by a strain ring 27 forced down by suitable hooks engaging on the strain ring and passing through said ledge and receiving nuts on the lower ends of the hooks and engaging under said ledge, the hooks not being shown as they form no part of the present invention.

The banjo neck 30 has an enlarged base portion 31 provided with a horizontal end recess 33 providing wide upper and lower engaging flanges 34 and 35 respectively disposed above and below said reflecting portion 16 of the casing and provided with upper and lower arcuate faces 38 and 39. Fig. 2 conforming to the curvature of said strain ring 27 and said downwardly extended portion 18, the upper flange thus pivoting on said strain ring and the upper edge of said outer portion. The inner face of said recess 35 is also arcuate and conforms to the curvature of the outer face of said reflecting portion 16.

A washer plate 40 fixed on the inner face of said rim is provided with upper and lower openings receiving thrust and strain bolts 41 and 42 disposed in said openings respectively and having inner operating heads 43. The upper thrust bolt 41 is provided with a reduced outer bearing end 45 received in a lateral bearing bore provided in a rod 46 disposed in the vertical bore 47 of the banjo neck. The intermediate part of the thrust bolt is threaded and is received in a radial tapped bore passing through said outer portion 16 and a deep boss 50 thereon. Said rod 46 is also provided with a transverse tapped bore 51 receiving the threaded end 52 of the strain bolt 42, where-
by adjustment of said bolts may cause the neck to pivot and engage against said strain ring and upper edge of the outer portion of the casing, thereby to raise or lower the strings 55 of the banjo relative to the volum to permit the use of a high or a low bridge 58, or if necessary because of the bending or warping of the neck, and also when desired to bring about change of tension of all the strings at once to raise or lower the tone of the banjo as a whole.

The bolts 41 and 42 also cooperate with the rod 46 for supporting the neck on the outer casing 15 and connecting the neck to the body of the instrument so that the neck and the body of the instrument, when the neck is in normal position, are in substantially the same horizontal plane, as shown in Fig. 1, and all the end faces of the neck are spaced slightly away from the adjacent faces of the body of the instrument, that is, the bottom face of the recess 38 and the end face of the flange portion 39 are spaced slightly away from the adjacent faces of the outer casing and the end face of the flange portion 38 is spaced slightly away from the adjacent face of the strain ring 27, the neck being wholly supported by said bolts and movable upwardly or downwardly by said bolts to inclined portions on either side of the normal horizontal plane of the neck and body. The bolt 42 also provides a means for retaining the rod 46 in the bore 47 of the neck.

The banjo is played upon in the ordinary way. If it be desired to use a high bridge such as would otherwise lift the strings too far from the frets, it is necessary to pivot the neck backwardly to bring the strings close to the frets. This is accomplished by screwing the thrust bolt 41 against the rod 46 and turning the strain bolt 42 to draw the rod 46 toward the rim. This causes the neck to pivot backwardly so that the strings and neck will take the position of the dotted lines of Fig. 3.

If one should use a low bridge with the neck pivoted back, as just described, the strings might touch the frets; and it is then necessary to manipulate the bolts 41 and 42 in a manner reverse to the above to bring the strings the right distance from the frets, as shown by the full lines of Fig. 3.

Similar movements to the above without changing the bridges, have the effect of raising or lowering the tone of all the strings at once.

If for any reason the neck should become strained, bent or warped, so as to destroy the right relation between the strings and the keyboard, the defect can be removed by adjustably pivoting the neck until the right relation is restored.

I claim:

1. In a string instrument, in combination, a body, a neck, and means disposed in the body at a right angle to means disposed in the neck and cooperating therewith for supporting the neck and connecting the neck and body in substantially the same plane when the neck is in normal position, the neck being wholly supported by said means, all the end faces of the neck when the neck is in normal position being spaced away from the adjacent faces of the body and the neck being movable by said means to inclined positions on either side of the normal plane of the neck and body.

2. In a string instrument, in combination, a body, a neck, and means disposed in the body at a right angle to means disposed in the neck and cooperating therewith for supporting the neck and connecting the neck and body in substantially the same plane when the neck is in normal position, the neck being wholly supported by said means, all the end faces of the neck when the neck is in normal position being spaced away from the adjacent faces of the body and the neck being movable by said means to inclined positions on either side of the normal plane of the neck and body.

3. In a sound instrument, the combination of an instrument body provided with plain and tapped parallel bores; a neck pivotally disposed relative to the body; strain and thrust bolts disposed in said plain and tapped bores respectively and having wrench receiving heads within the body, the strain bolt having a threaded end, the thrust bolt having its intermediate part threaded and received in the tapped bore; and a member carried fast by said neck and pressed upon by said thrust bolt and provided with a tapped bore receiving said threaded end of the strain bolt.

4. In a string instrument, in combination, a body, a neck having a transverse bore therein, a rod in said bore, and a thrust bolt and a strain bolt disposed in the body at right angles to said rod and secured at one of their ends to the rod for supporting the neck and connecting the neck and body so that when the neck is in normal position the neck and body are in substantially the same plane, the neck when in normal position being spaced away at all its end faces adjacent to the body from the faces of the body and being movable by said bolts to inclined positions on either side of the normal plane of the neck and body.

5. In a string instrument, in combination, a body, a neck having a transverse bore therein, a rod in said bore, a thrust bolt and a strain bolt disposed in the body in spaced superimposed relation to each other and at right angles to said rod and secured to the rod at one of their ends for supporting the
neck and connecting the neck and body so that when the neck is in normal position the neck and body are in substantially the same plane, the neck being movable by said bolts to inclined positions on either side of the normal plane of the neck and body.

6. In a string instrument, in combination, a body, a neck having a transverse bore therein, a rod in said bore, a thrust bolt and a strain bolt disposed in the body in spaced superimposed relation to each other and at right angles to said rod and secured to the rod at one of their ends for supporting the neck and connecting the neck and body so that when the neck is in normal position the neck and body are in substantially the same plane, the neck being movable by said bolts to inclined positions on either side of the normal plane of the neck and body, the strain bolt passing through said rod for retaining the rod in said transverse bore.

7. In a sound instrument, the combination of an instrument body provided with plain and tapped parallel bores; a neck pivotally disposed relative to the body and provided with a transverse bore; strain and thrust bolts disposed in said plain and tapped bores respectively, the strain bolt having a threaded end, the thrust bolt being provided with a reduced outer bearing end, the intermediate part of the thrust bolt being threaded and received in the tapped bore; and a rod disposed in said transverse bore and provided with a bearing bore receiving said bearing end and a tapped bore receiving said threaded end of the strain bolt.

8. In a string instrument, in combination, a body having a rim member and a rigid outer casing around the rim member, a neck pivotally resting on said casing, and means for adjustably positioning the neck relative to the body.

9. In a string instrument, in combination, a body having a rim member, a rigid outer casing on the rim member, a neck, and means appurtenant to the rim member and outer casing cooperating with means appurtenant to the neck for supporting the neck and connecting the neck and body so that when the neck is in normal position the neck and body are in substantially the same plane, the neck being movable by said means to inclined positions on either side of the normal plane of the neck and body.

10. In a string instrument, in combination, a body having a rim member, an outer casing on the rim member, and means appurtenant to the rim member and outer casing cooperating with means appurtenant to the neck for supporting the neck and connecting the neck and body so that when the neck is in normal position the neck and body are in substantially the same plane, the neck when in normal position being spaced away from the body at all its end faces adjacent to the faces of said outer casing and movable by said means to inclined positions on either side of the normal plane of the neck and body.

11. In a string instrument, in combination, a body having a rim member, an outer casing on the rim member, a neck having an enlarged end having a recess therein, a side portion of the outer casing being received in said recess, and means in the rim member passing through said side portion and cooperating with means in the neck for connecting the neck and body so that when the neck is in normal position the neck and body are in substantially the same plane, the neck when in normal position being spaced away at the bottom face of said recess and at the end faces of said flanges from the adjacent faces of the body and movable by said means to inclined positions on either side of the normal plane of the neck and body.

12. In a string instrument, in combination, a body having a rim member, a tone band on the rim member, a vellum stretched over the tone band, an outer casing on the rim member and spaced away from the rim member, a neck having an enlarged end provided with a bore having a rod therein and having a recess formed by extending flanges of the enlarged end, a side portion of the outer casing being received in said recess, and a thrust bolt and a strain bolt in the rim member passing through said side portion and secured to said rod at right angles to the rod for supporting the neck and connecting the neck to the outer casing and rim member so that when the neck is in normal position the neck and said vellum are in substantially the same plane, the neck being movable by said bolts to inclined positions on either side of the normal plane of the neck and vellum.

13. In a string instrument, in combination, a body having a rim member, a tone band on the rim member, a vellum on the tone band, a strain ring for stretching the vellum on the tone band, an outer casing on the rim member and spaced away from the rim member, a neck having an enlarged end provided with a bore having a rod therein and having a recess formed by extending flanges of the enlarged end, a side portion of the outer casing being received in said recess, and a thrust bolt and a strain bolt in the rim member passing through said side portion and secured to said rod at right angles to the rod for supporting the neck and connecting the neck to the outer casing and rim member so that when the neck is in normal position the neck and said vellum are in substantially the same plane, the neck when in normal position being spaced away at the bottom face of said recess and the end face of one of said flanges from the adjacent faces of the outer casing and spaced away.
away at the end face of the other of said flanges from the adjacent face of said strain ring, the neck being movable by said bolts to inclined positions on either side of the normal plane of the neck and vellum.

14. In a string instrument, the combination with a body having a rim member of an outer casing spaced around said rim member, a neck having an end portion provided with a recess receiving a portion of the outer casing, the neck at one of the sides of said recess pivoting on the adjacent edge of said portion of the outer casing, and means for cooperating between the body and neck for supporting the neck and connecting the body and neck in substantially the same plane when the neck is in normal position, the neck being movable by said means to inclined positions on either side of the normal plane of the neck and body.

15. In a string instrument, the combination with a body having a rim member of a tone band on the rim member, a vellum stretched over the tone band, a strain ring for the vellum, an outer casing spaced around the rim member, a neck having an end portion having a recess formed in said end portion by extending flanges and receiving therein a portion of the outer casing, said flanges having arcuate end faces conforming to the adjacent faces of the outer casing and said strain ring, the neck at one of the sides of said recess pivoting on the adjacent edge of said portion of the outer casing, and means cooperating between the body and neck for supporting the neck and connecting the body and neck in substantially the same plane when the neck is in normal position, the neck being movable by said means to inclined positions on either side of the normal plane of the neck and body.

Signed at 253 Broadway, N. Y. city in the county of New York and State of New York this 10th day of October A. D. 1923.

WILLIAM L. LANGE.