

July 23, 1957

G. F. GREGG ET AL

2,800,050

STRINGED MUSICAL INSTRUMENT

Filed Sept. 10, 1954

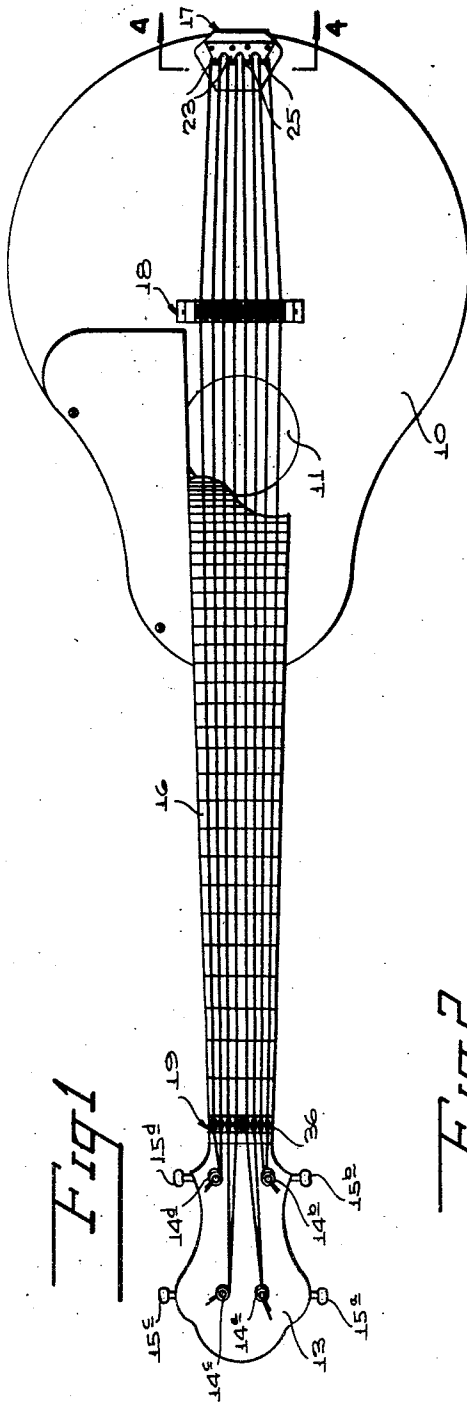


Fig 1

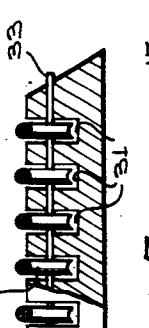
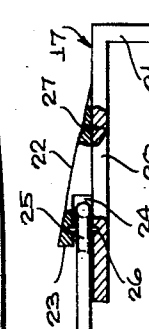
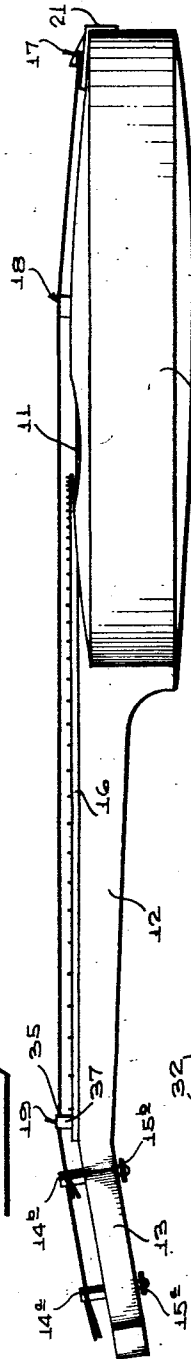


Fig 2

Fig 3

Fig 4

Fig 5

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STRINGED MUSICAL INSTRUMENT

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Application September 10, 1954, Serial No. 455,219

2 Claims. (Cl. 84-267)

This invention relates to stringed musical instruments, and more particularly to a double or twin stringed instrument, such as a mandolin.

It is among the objects of the invention to provide a double stringed instrument, such as mandolin, wherein each double string is a single string doubled about a string holder on the instrument tailpiece and connected at both ends to a single tuning key, so that both sides of such a double string can be simultaneously tuned to exactly the same pitch by turning the single tuning key, wherein anti-friction means are provided at the tailpiece, bridge and nut of the instrument to equalize the tension in the two sides of each double string, and wherein a tailpiece, bridge and nut including antifriction means may be applied to an existing instrument without material modification of the instrument, and double length strings can be applied to an instrument so equipped and connected to the tuning key so that only one such key is required for each double string, and which instrument is strong and durable in construction, economical to manufacture, and the modified strings, tailpiece, bridge and nut do not interfere in any way with the normal use of the instrument or disadvantageously affect the musical output thereof.

Other objects and advantages will become apparent from a consideration of the following description and the appended claims in conjunction with the accompanying drawing, wherein:

Figure 1 is a top plan view of a stringed instrument illustrative of the invention.

Figure 2 is a side elevation of the instrument illustrated in Figure 1.

Figure 3 is a side elevation on an enlarged scale of the instrument bridge, a portion being broken away and shown in cross section to better illustrate the construction thereof.

Figure 4 is a cross sectional view of the instrument tailpiece taken substantially on the line 4-4 of Figure 1 and shown on an enlarged scale, and

Figure 5 is an end elevation of the tailpiece, portions being broken away and shown in cross section to better illustrate the construction thereof.

With continued reference to the drawing, the instrument illustrated is a mandolin type instrument having a hollow body 10 provided in its upper face with a sound opening 11, an elongated neck 12 secured at one end to the body 10 at one end of the latter, and a head or scroll 13 at the end of the neck 12 opposite the body 10.

In the case of an instrument having four double strings, as illustrated, four tuning keys 14a, 14b, 14c and 14d are rotatably mounted in the head 13 and respectively operated by the tuning knobs 15a, 15b, 15c and 15d projecting laterally of the head. A fret board 16 is mounted on the top face of the neck 12 and extends substantially from the sound opening 11 in the top face of the body 10 to the end of the neck from which the head 13 extends.

A tailpiece, generally indicated at 17, a bridge, generally indicated at 18, and a nut, generally indicated at 19

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are mounted on the instrument at the usual or conventional locations.

The tailpiece 17, as particularly illustrated in Figures 4 and 5, comprises a bottom plate 20 having a one end a depending flange or leg 21 so that when the plate 20 is placed on the top face of the instrument body at the end of the latter opposite the neck 12, the leg 21 will depend against the end wall of the body, as is clearly illustrated in Figure 2, so that the tailpiece cannot be moved toward the neck 12 of the instrument. If desired, suitable means may be extended through the leg 21 to secure this leg to the body of the instrument at the end of such body opposite the instrument neck.

A wedge shaped cover 22 is secured on the upper face of the plate 20 and increases in thickness in a direction from the leg 21 toward the opposite end of the plate 20. At its thicker edge the cover 22 is provided with a plurality of spaced apart, outwardly extending fingers 23 which overlie a recess 24 extending transversely of this thicker end of the cover 22.

A plurality of small peripherally grooved sheaves 25 are disposed in side by side relationship in the recess 24 between the plate 20 and the fingers 23 of the cover 22, and each of these sheaves is journaled on an individual axle 26 secured at one end in the cover 22 and at its opposite end in a respective finger 23 near the outer end of such finger, so that the sheaves are rotatable about individual axes disposed substantially perpendicular to the plate 20 and to the top face of the instrument body 10. The cover 22 is detachably secured to the plate 20 by suitable means, such as screws 27 extending through the cover and threaded into the plate at locations spaced from the recess 24 toward the thinned edge of the cover.

The bridge 18 is particularly illustrated in Figure 3, and comprises an elongated block 30 of substantially rectangular, cross sectional shape and having therein a plurality of uniformly spaced apart rectangular notches 31 opening to the top surface of the block. Small peripherally grooved sheaves 32 are respectively disposed in the notches 31 and journaled on a rod 33 which extends longitudinally through the block and through the individual sheaves concentrically of the latter. The sheaves 32 are thus supported in side by side relationship for rotation about a common axis substantially parallel to the top face of the instrument body 10.

The nut 19 is of the same construction as the bridge 18, but is somewhat smaller than the bridge. This nut comprises a block 35 mounted on the fret board 16 at the adjacent end of the head 13, a plurality of small peripherally grooved sheaves 36 disposed in uniformly spaced apart notches in the block 35 and journaled on a common axle 37, so that the sheaves 36 are also mounted in side by side relationship for rotation about a common axis substantially parallel to the fret board.

Four double length strings are provided and each string is bent substantially at its mid-length location about a respective one of the sheaves 25 carried by the tailpiece 17. Each string is then extended in double condition across the bridge 18 and the nut 19 and connected at both of its ends to a respective one of the tuning keys 14a, 14b, 14c and 14d. The two parts of each string are supported upon two adjacent sheaves 32 of the bridge and upon two adjacent sheaves 36 of the nut, the sheaves 25, 32 and 36 providing antifriction supports for the strings, so that when one of the strings is tightened by turning the corresponding tuning key, the tension in both sides of the double string will be equalized and both sides of the string will be simultaneously brought up to the desired pitch.

The tuning of an eight string instrument is thus reduced by one half, since each pair of strings is simul-

taneously tuned and the strings are also much more economical to make as it is not necessary to provide a knot or loop at one end of each string, both ends of each double string being securely clamped in the corresponding tuning key.

While an instrument having four double strings or four pairs of strings in which the two strings of each pair are tuned to the same pitch, has been described hereinabove, it is obvious that the principles of the invention may be applied to an instrument having a greater or lesser number of pairs of strings without in any way exceeding the scope of the invention.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is, therefore, to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are, therefore, intended to be embraced therein.

Having thus described the invention what is new and desired to be secured by Letters Patent is:

1. In a stringed musical instrument comprising a body, a neck extending from one end of said body, a head on the end of said neck remote from said body, tuning keys mounted in said head, and a fret board on said neck between said head and said body, a tailpiece positioned at the opposite end of said body, said tailpiece comprising a bottom plate resting upon the top face of said body and having at one end a depending leg bearing against the end wall of said body, means extended through said leg for fixedly securing said leg to said end wall of said body, a cover overlying and secured to said plate and having in one end a recess extending transversely of said plate, a plurality of sheaves disposed in side by side relationship in said recess, individual axles extending through said sheaves and secured at their opposite ends in said plate and said cover respectively for mounting said sheaves for rotation about individual axes substantially perpendicular to said plate, an elongated bridge mounted on the instrument body at a location spaced from said tailpiece, a plurality of small sheaves carried by said bridge in side by side relationship for rotation about a common axis substantially parallel to the adjacent face of the instrument body, a nut mounted on the fret board at the adjacent end of the instrument head, a plurality of small sheaves carried by said nut in side by side relationship for rotation about a common axis substan-

tially parallel to said fret board, and a plurality of double strings each bent substantially at its mid-length location about a respective sheave carried by said tailpiece and trained over adjacent sheaves carried by said bridge and said nut, such string being connected at both ends to a corresponding tuning key.

2. In a stringed musical instrument comprising a body, a neck extending from one end of said body, a head on the end of said neck remote from said body, tuning keys mounted in said head, and a fret board on said neck between said head and said body, a tailpiece positioned at the opposite end of said body, said tailpiece comprising a bottom plate resting upon the top face of said body and having at one end a depending leg bearing against the end wall of said body, means extended through said leg for fixedly securing said leg to said end wall of said body, a wedge shaped cover overlying and secured to the upper face of said plate, said cover increasing in thickness in a direction from said leg toward the opposite end of said plate, a plurality of spaced apart outwardly extending fingers at the thicker edge of said cover and overlying a recess formed in and extending transversely of said cover thicker edge, a plurality of sheaves disposed in side by side relationship in said recess between said plate and said fingers, individual axles extending through said sheaves and secured at their opposite ends in said plate and said cover respectively for mounting said sheaves for rotation about individual axes substantially perpendicular to said plate, an elongated bridge mounted on the instrument body at a location spaced from said tailpiece, a plurality of small sheaves carried by said bridge in side by side relationship for rotation about a common axis substantially parallel to the adjacent face of the instrument body, a nut mounted on the fret board at the adjacent end of the instrument head, a plurality of small sheaves carried by said nut in side by side relationship for rotation about a common axis substantially parallel to said fret board, and a plurality of double strings each bent substantially at its mid-length location about a respective sheave carried by said tailpiece and trained over adjacent sheaves carried by said bridge and said nut, such string being connected at both ends to a corresponding tuning key.

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