July 16, 1929. A. D. GROVER ET AL 1,721,153

TAIL PIECE

Filed May 18, 1926

Fig. 1.

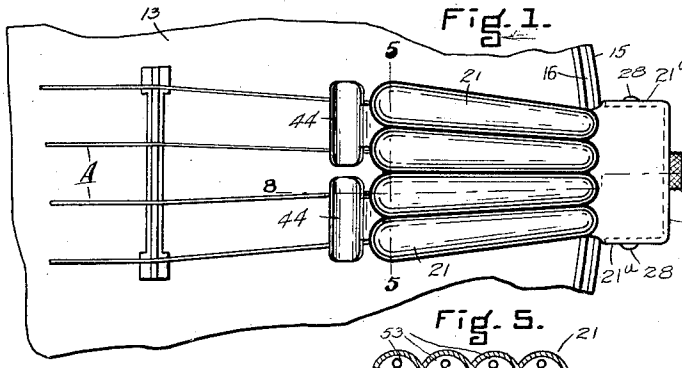


Fig. 7.

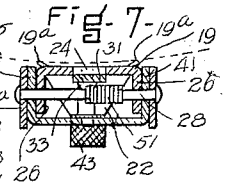


Fig. 5.

Fig. 4.

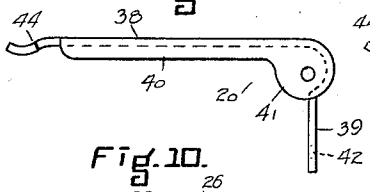


Fig. 3.

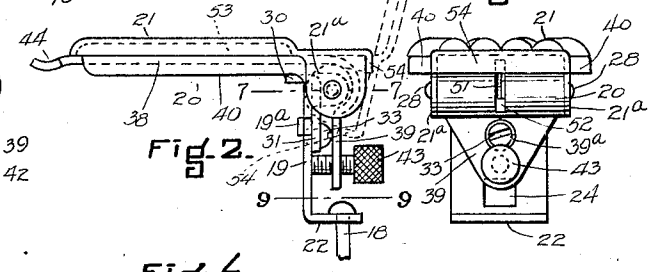


Fig. 2.

Fig. 10.

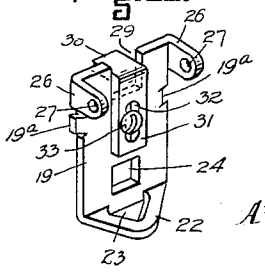


Fig. 6.

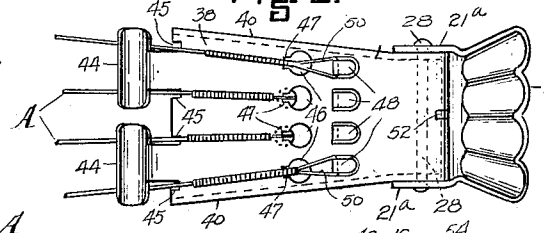
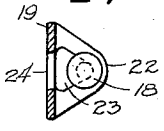


Fig. 9.



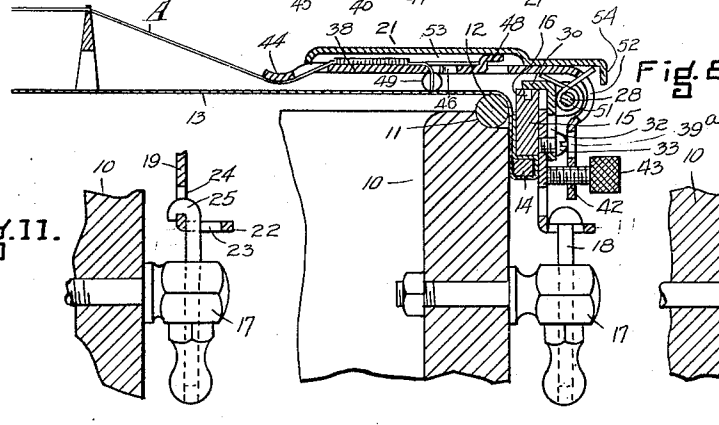
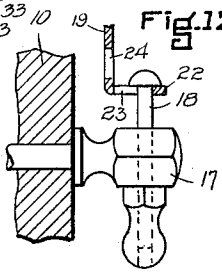


Fig. 8.

Fig. 11.

Fig. 12.



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by Their Atty.

Patented July 16, 1929. 1,721,153

UNITED STATES PATENT OFFICE.

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TAIL PIECE.

Application filed May 18, 1926. Serial No. 109,868.

Our invention relates generally to tail pieces for stringed musical instruments and has particular reference to certain improvements in construction, which include hinged cover and base plates, string fastening means, and a substantially universally adjustable supporting member for the cover and base plates.

The object of the invention is to provide an improved device of this character applicable to substantially any type of stringed musical instrument utilizing a tail piece.

A further object of our invention is to provide a cover plate, base plate and rear plate pivotally connected together by a common hinge pin for the purpose of rendering the parts adjustable with respect to one another and to the head of the instrument.

A still further object of the invention is to provide a hinged cover plate of the character described, having a series of string chambers running longitudinally thereof which, when the cover is in closed position, provide a separate compartment for each string beyond the point where it is fastened to the end of the tail piece.

Another object of our invention is the provision of string fastening means in the base plate immediately under the hinged cover plate so as to facilitate removal and application of the strings of the instrument.

Other objects of the invention, include the provision of improved features of construction which enable the tail piece to be adjusted with respect to the top hoop of the instrument, a spring actuated cover plate and stop therefor, for normally tending to hold the cover closed and for limiting its movement in open position.

The invention is illustratively exemplified in the accompanying drawings, in which Figure 1 is a plan view of an instrument head with our improved tail piece in place; Figure 2 is a side elevational view of the same; Figure 3 is an end elevational view of the tail piece; Figure 4 is a detail side elevational view of the base plate; Figure 5 is a substantially transverse sectional view of the device taken on lines 5—5 of Figure 1; Figure 6 is a plan view of the tail piece with the cover plate in raised position to show the string attaching means; Figure 7 is a substantially transverse sectional view of the tail piece taken on lines 7—7 of Figure 2; Figure 8 is a substantially longitudinal sectional view of the device taken on lines 8—8 of Figure 1; Figure 9 is a sectional view of the supporting plate taken on lines 9—9 of Figure 2; Figure 10 is a detail perspective view of the supporting plate; Figure 11 is a view of a hook used to attach the tail piece to the instrument; and Figure 12 is a view of a bolt for attaching the tail piece to the instrument.

Referring to the drawings, 10 designates the rim of a musical instrument which for the purpose of illustration may be that of a banjo. The rim 10 is provided with a continuous peripheral groove 11 in which is seated a hoop 12 over which the skin head 13 is turned to project over the side of the rim 10. A flesh hoop 14 receives the edge of the head 13 as illustrated in Figure 8, and is drawn downwardly to stretch the head 13 by means of a top hoop 15, the latter having a groove 16 in its upper side to receive the usual screw hooks, not illustrated.

One of the screws holding the top hoop 15, and carried by the usual rim screw device 17 includes a headed bolt or straining screw 18 which operates to adjustably attach our improved tail piece to the instrument.

The tail piece comprises a supporting plate 19, base plate 20 and hinged cover plate 21. The supporting plate 19 is an upright member having the lower end turned outwardly at right angles to the upright portion to provide a projection 22 having a triangular opening 23, the base of which parallels the line of the bend between the projection 22 and upright portion. The purpose of the opening 23 is to receive the bolt 18 therethrough, the shape of the slot enabling the supporting plate to be adjusted radially and circumferentially of the rim 10, as illustrated clearly in Figures 8, 9 and 10. The supporting plate 19 is also provided with an opening 24 in the upright portion of the wall just above the bend. According to the arrangement, illustrated in Figure 11, the bolt 18 is provided with a hook 25 at its upper end to engage over the edge of the opening 24, thereby holding the plate in position with respect to the rim 10. The upper end of the supporting plate 19 is provided with outwardly and rearwardly projecting ears or lugs 26 which are disposed parallel to each other and have at their free ends alined openings 27 to receive a hinge pin 28. Intermediate the upright sides of the sup-

porting plate 19 and disposed in the upper end thereof is an open ended slot 29 to accommodate one arm 30 of an angle piece 31, the other arm being adapted to rest against the portion of the plate below the slot 29 and having a longitudinal slot 32 to receive a screw 33 carried by the supporting plate 19 and adjustable against the angle piece 31 to hold the latter rigid on the latter plate.

In order to insure the position of the supporting plate 19 with respect to the curved wall of the top hoop 15 of the instrument, the portions of the plate just below the ears 26 are pressed forward or in a direction opposite to the ears, to provide fingers or projections 19ª, which engage with the top hoop 15, as illustrated in Figure 7, the projections being so disposed as to hold the intermediate portion of the plate slightly away from the curved underlying surface of the top hoop 15.

Referring now to the base plate 20, illustrated particularly in Figure 4, the part includes an angle plate, one portion 38 thereof overlying the head and the other or rim portion 39 being disposed outside or rearwardly of the supporting plate 19. The head portion 38 comprises a flat section, wider at its free end than at the angle and provided with turned down edges 40 terminating at the narrow end of the plate in enlarged ears 41, which embrace the lugs 26 of the supporting plate 19 and are provided with alined openings to receive the hinge pin 28. The enlarged lugs or ears 41 are preferably circular having their respective centers coincident with the axis of the pin 28. The angle or bend of the plate 20 coincides with the peripheral edge of the lugs 41 and at substantially right angles to the plane of the head portion 38 the bend terminates in the rim portion 39. Adjacent the end of the rim portion 39, the latter is provided with a threaded opening 42 in which a screw 43 is mounted, the end thereof being adapted to engage the supporting plate 19, so as to render the base plate 20 adjustable with respect to the head of the instrument.

Referring again to the portion 38 of the base plate, the outer free end thereof is provided with spaced T-shaped projections 44, the stem portions being curved downwardly towards the head of the instrument and the cross portions being curved in the opposite direction. Notches 45 disposed in the end of the portion 38 at each side of the projections 44 receive and guide the strings from the plate and under the cross portions. Intermediate the portion 38 of the plate 20 and arranged transversely thereof are parallel rows of string attaching means comprising a plurality of openings 46 having short slots 47 communicating therewith and being disposed forward of the plate, and a similar number of prongs or lugs 48 struck up from the body of the plate and having their free ends directed towards the rear of the tail piece. The purpose of the openings 46 is to receive the ends of strings A, having beads 49 attached thereto, the latter being drawn under the slots 47 and the strings themselves emerging through the slots to the surface of the portion 38 and thence to the notches 45, as illustrated in Figure 6. The raised prongs 48 are used to receive the looped ends 50 of strings if the latter happen to be of that type. The rim portion 39 of the base plate is provided with an opening 39ª adapted to register with the head of the screw 33 so as to accommodate a screw driver in the operation of adjusting the screw.

The base plate 20 is yieldably held upwardly away from the head of the instrument by means of a coiled spring 51 disposed about the pivot pin 28 and having one end arranged against the under surface of the head portion 38, while the opposite end projects through a slot 32 in the angle of the base plate and bears against the cover plate 21 to normally hold it in closed position. The cover plate 21 according to the embodiment of the invention shown in the drawings and particularly in Figures 1, 5, 6 and 8 comprises a member substantially the shape and area of the head portion 38 of the base plate and provided with a longitudinally fluted surface which forms a series of string compartments 53, each thereof having the arched portion of a flute as the upper wall and the surface of the head portion 38 as the bottom wall. In the present application, four compartments 53 are shown for a four stringed instrument and it might be mentioned in this connection that each set of string attaching elements is confined to the space beneath its respective flute in the cover plate. The cover plate in closed position rests directly on the head portion 38 and adjacent the rearward end wing portions of the cover are turned at right angles to form ears 21ª adapted to embrace the ears or lugs 41 of the base plate 20 and provided with alined openings to receive the ends of the hinge pin 28 which is upset or otherwise headed to prevent axial movement thereof. The end of the spring 51 engaging the cover does so at a point beyond or rearwardly of the axis of the pin 28, so as to normally hold the opposite end of the cover in closed position. A point in the plate substantially beyond the pivotal axis of the cover is turned downwardly to form a stop lip 54 which when the cover is being opened, rides over the curved angle of the base plate 20 and finally engages against the rear plate 19 just above the adjusting screw 33, as clearly illustrated in Figure 2.

Our improved tail piece is attached to the instrument by placing the arm 30 of the angle piece 31 upon the upper side of the top hoop 15. The head of the screw 18 is then projected

through the triangular opening 23 of the supporting plate 19 and allowed to engage a portion of the projection 22. Before tightening the screw 18 the vertical position of the tail piece may be adjusted by manipulation of the screw 33 and angle piece 31. The object of this particular adjustment is to properly locate the entire tail piece relatively of the top hoop 15 and head 10 of the instrument. When a banjo, for example, is new, it is sent out from the factory with the top hoop 15 raised considerably above the head or rim 10. This arrangement gives the person who receives the instrument an opportunity to gradually pull down on the top hoop 15 until the head 13 is properly stretched and adjusted. As the head 13 is stretched, the relative positions of the rim 10 and tail piece change and by means of a screw driver inserted through the opening 39[a] in the part 39, the screw 33 may be engaged and adjusted to permit vertical adjustment of the angle piece 31 to accommodate the position assumed by the top hoop 15.

The lateral or circumferential adjustment of the supporting plate 19 and consequently the entire tail piece to permit a player to locate the strings A closer to one side of the arm of the instrument than to the other, is accomplished by loosening the screw 18 and adjusting the rear plate by means of the triangular slot 23. Radial or rearward adjustment of the tail piece is also accomplished by the same slot 23, which in extreme positions will be engaged under the head of the screw 18 either at the apex of the triangle or at the center of the base thereof. The purpose of this adjustment is to accommodate the tail piece to different makes of instruments without changing the dimensions of the tail piece. The main difference in the various makes of instruments is in the bolts 17 which vary in length and the radial adjustment enables the tail piece to be firmly attached to the instrument rim and at the same time allowing the screw 18 to remain in vertical position.

The present invention makes the method of attaching strings A a very simple operation. Since the string attaching means 46 and 48 are disposed on the head portion 38 of the base plate 20 it is only necessary to open the cover 21 to the position illustrated in dotted lines in Figure 2. A string A is atached and the cover released, the strings then being held in their respective compartments 53 and consequently in position until the opposite ends can be attached to the tuning pegs and tuned up to pitch.

What we claim and desire to secure by Letters Patent is:—

1. A tail piece for a stringed musical instrument having a partitioned cover plate to provide separate compartments for the strings.

2. A tail piece for a stringed musical instrument having a hinged partitioned cover plate to provide separate compartments for the strings.

3. A tail piece for a stringed musical instrument having a hinged cover plate provided with separate compartments for the strings.

4. A tail piece for a stringed musical instrument having a hinged cover plate provided with a fluted surface forming separate compartments to accommodate the strings of the instrument.

5. A tail piece for a stringed musical instrument, comprising a supporting plate adjustably connected to the instrument, a base plate for the strings, a cover plate, and a common hinge connection for the supporting base and cover plates.

6. A tail piece for a stringed musical instrument, comprising a supporting plate adjustably connected to the instrument, a base plate for the strings, a cover plate having a fluted surface to form individual compartments for the strings, and a common hinge connection for the supporting base and cover plates.

7. A tail piece for a stringed musical instrument, comprising a supporting plate adjustably connected to the instrument, a base plate for the strings, a cover plate having a stop to engage the base plate in open position, a hinge connection common to the supporting base and cover plates, and means operating in said hinge connection to yieldably hold the base plate upward away from the head of the instrument and the cover plate in contact with the base plate.

8. A tail piece for a stringed musical instrument, comprising a base plate having a portion thereof constructed to overlie the head of the instrument, said portion being provided with sets of string attaching means intermediate its ends, and a fluted cover plate having separate string compartments, one thereof for each set of string attaching means.

9. A tail piece for a stringed musical instrument, comprising a base plate having a portion thereof to overlie the head of the instrument, said portion being provided with sets of strings attaching means comprising a plurality of openings having short slots communicating therewith and stamped up prongs alined with said openings, both openings and prongs being disposed in parallel lines arranged transversely of the base plate, and a cover plate having a fluted surface to form string compartments with the surface of the base plate, an opening and a prong of the base plate being disposed in each compartment when the cover is in closed position.

10. A tail piece for a string musical instrument having a rim plate and top hoop therefor, comprising a supporting plate carried by and adjustable with respect to the rim, and means adjustably mounted on said supporting plate and operating to engage over the top hoop.

11. A tail piece for a stringed musical instrument, having a rim plate and top hoop adjustable thereover to stretch the head over the rim comprising a supporting bracket to support the tail piece, means to adjustably support the bracket on the rim, and means adjustable on the bracket and operating to engage over the top hoop.

12. A tail piece for a stringed musical instrument having a rim plate and top hoop adjustable thereover to stretch the head over the rim, comprising a supporting plate to support the tail piece, means to adjustably support the supporting plate radially and axially of the rim, means adjustably carried by the supporting plate and operating to engage over the top hoop, and a base and cover plate hinged on a common axis to the supporting plate.

13. A tail picee for a stringed musical instrument having a rim plate and top hoop adjustable thereover to stretch the head over the rim, comprising a supporting plate to support the tail piece, means operating to adjustably support the supporting plate radially and axially of the rim, means adjustably carried by the supporting plate and operating to engage over the top hoop, a base plate hinged to said supporting plate, and means operating to adjust the base plate about its hinged connection and with respect to the head.

14. A tail piece for a stringed musical instrument having a rim plate and top hoop operating to stretch the head over the rim, comprising a supporting plate to support the tail piece comprising an L-shaped bracket having projections provided with alined openings and offset portions pressed from the surface of the bracket and operating to engage the adjacent curved surface of the top hoop to steady the position of the bracket, means adjustably carried by the bracket and operating to engage over the top hoop, base and cover plates hinged to the bracket, and a common hinge pin mounted in the said alined openings in the projections for supporting the base and cover plates.

15. In combination with a stringed musical instrument having a rim and adjustable top hoop to stretch the head over the rim, of a tail piece therefor, and means to adjust the tail piece radially, axially and circumferentially of the rim.

16. In combination with a stringed musical instrument having a rim and adjustable top hoop to stretch the head over the rim, of a tail piece therefor comprising a supporting plate made from a blank having upright projections at one end bent at right angles to the plane of the blank and provided with alined openings, a lateral projection at the other end bent rearwardly and provided with a triangular opening, means carried by the rim and operating through said triangular opening to engage and adjust the supporting plate radially, axially and circumferentially of the rim, a base plate and cover plate pivotally mounted in the alined openings of the first mentioned projections, an L-shaped member adjustable on the rear plate and arranged to engage over the said top hoop, means to yieldably hold the base and cover plates in the direction of the head, and means operating to adjust the base plate against the yieldable means.

17. A tail piece for a stringed musical instrument, comprising a supporting plate, base plate and cover plate, each thereof having projections nested one within the other, and a common hinge pin projecting through said nested projections.

18. A tail piece for a stringed musical instrument, comprising a supporting plate, base plate and cover plate, each thereof having projections nested one within the other, a common hings pin projecting through said nested projections, and means operating to adjust the supporting plate radially, axially and circumferentially of the instrument.

In testimony whereof we affix our signatures.

ALBERT D. GROVER.
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