Feb. 19, 1957 R. C. WHITE ET AL 2,781,685

PITCH CHANGING ATTACHMENT FOR STRINGED MUSICAL INSTRUMENTS

Filed July 24, 1956

FIG. 1

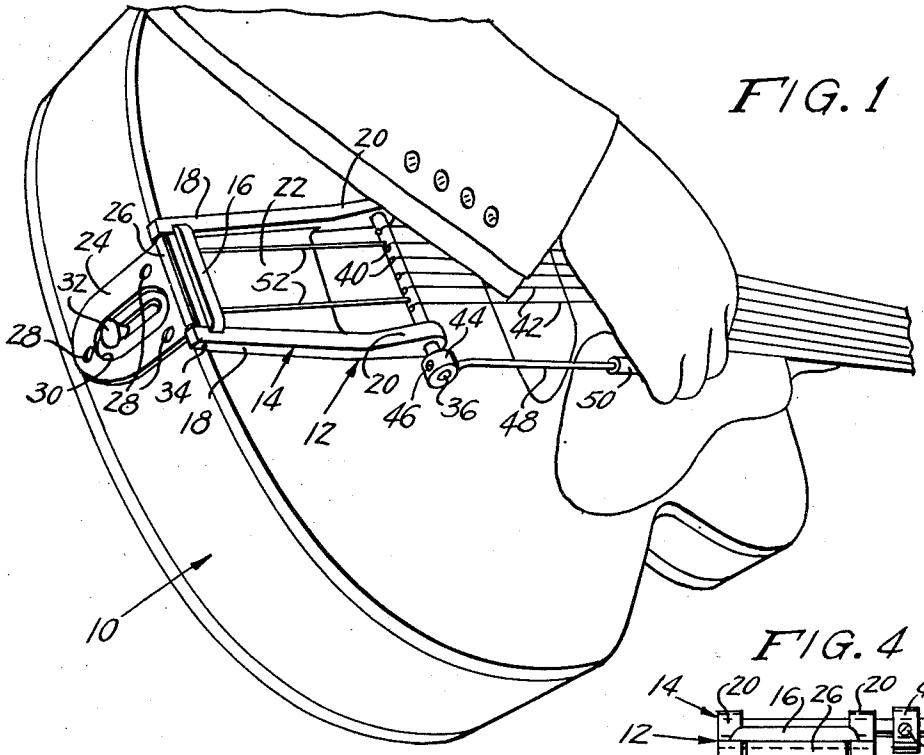


FIG. 4

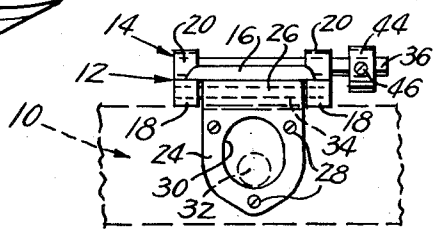


FIG. 2

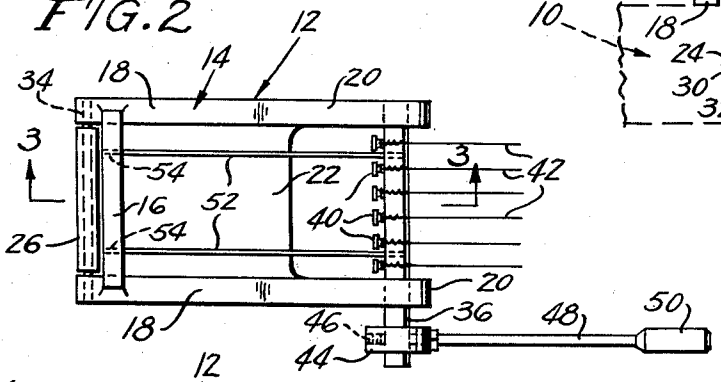
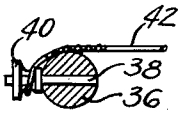


FIG. 5



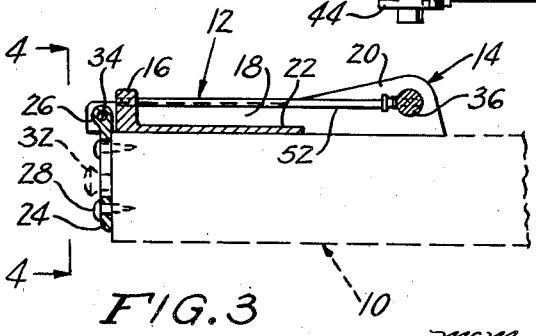


FIG. 3

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PITCH CHANGING ATTACHMENT FOR STRINGED MUSICAL INSTRUMENTS

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5 Claims. (Cl. 84—312)

This invention relates generally to stringed musical instruments, such as guitars. More particularly, the invention has reference to a device adapted for changing the pitch of the instrument, and further adapted for producing vibrato effects.

The main object of the invention is to provide a device which will permit rapid and accurate raising or lowering of the pitch of the several strings of the instrument, with the device being equally well adapted for permitting the musician to produce vibrato effects, to such extent as he may desire.

In carrying out the above stated object, we have conceived an attachment which may be summarized briefly as including a yoke-like member adapted to be connected to the instrument. Carried by said member is a rotatable shaft, to which the strings of the instrument are connected. A handle extends from said shaft, in proximity to the strings, so that the user, by swinging of the handle, may rotate the shaft to place the strings temporarily under heavier or less tension to a selected degree, thereby to change the pitch during the playing of the instrument. The construction is such that the player may cause a sustained change of pitch, or alternatively, a fluctuating pitch known as a vibrato.

Among other important objects of the invention are the following:

To permit the device to be attached to an otherwise conventional stringed instrument without requiring any modification of said instrument;

To permit the pitch-changing to be carried out without movement of the fingers from the area of the strings;

To permit the tuning of the instrument in the conventional manner;

To provide for automatic return of the strings to the originally tuned pitch thereof; and

To permit the attachment to remain inoperative whenever desired, for playing of the instrument in the usual manner.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawing, in which like reference characters designate like parts throughout the several views, and wherein:

Figure 1 is a fragmentary perspective view of a guitar equipped with the pitch changing device constituting the invention;

Figure 2 is a top plan view of the pitch changing attachment, the strings being shown fragmentarily;

Figure 3 is a longitudinal section through the device on line 3—3 of Figure 2 in which the instrument has been shown fragmentarily, in dotted lines;

Figure 4 is an elevational view of the device as seen from the line 4—4 of Figure 3, the instrument again being shown fragmentarily and in dotted lines; and

Figure 5 is an enlarged transverse section through the shaft of the device.

Designated generally at 10 is a conventional stringed musical instrument. A guitar is shown by way of example, but the device can be used on various other stringed instruments.

At 12 there has been generally designated the pitch changing attachment constituting the invention. This includes a rigidly constituted yoke or main support member generally designated 14, including a transversely extending, raised bight 16 integral at its ends with parallel arms 18 formed, at the ends thereof remote from the bight, with the enlarged portions 20. Rigidifying the structure is a flat web or reinforcing plate 22 integral at its sides and at one end with the arms 18 and bight 16 respectively.

The yoke 14 is adapted to lie flat against the top surface of the instrument, and is attached at its outer end to a flat bracket 24 formed with a sleeve 26 extending along its top edge. The bracket is attached to the end of the instrument by triangularly spaced screws 28, and centrally formed in the bracket is an opening 30 permitting access to the button 32 conventionally provided upon the instrument for attachment of a supporting loop, not shown.

A pin 34 extends through the sleeve 26 and is engaged at its ends in transversely aligned openings formed in the outer ends of arms 18.

Transversely aligned openings are formed in the enlarged inner end portions 20, and journaled therein is a shaft 36 formed at uniformly spaced intervals along its length with diametrically extending openings receiving pins 38. The pins 38 are fixedly engaged in said openings and project radially from the shaft in the direction of the bight 16. Slidably fitted upon the pins are small, peripherally grooved collars or rings 40, and the strings 42 of the instrument are looped about said rings and drawn taut. The portions of the strings immediately adjacent the rings are extended over shaft 36 in contact therewith.

One end of the shaft projects laterally from the yoke 14, and secured to said end by a set screw 46 or equivalent means is a collar 44 to which is fixedly connected an elongated, substantially straight handle 48, projecting forwardly from the yoke and offset laterally from the yoke to extend adjacent and in substantial parallelism with strings 42. A cylindrical enlargement 50 on the free end of handle 48 provides a grip facilitating swinging of the handle.

It will be seen that the instrument strings are thus retained by the attachment. Tuning is performed in the conventional manner and playing of the instrument in the usual manner is in no way affected or altered. The musician, as shown in Figure 1, however, may play the instrument with one or two fingers loosely positioned about the grip 50 and therefore, if it is desired to raise or lower the pitch, the handle is swung upwardly or downwardly as the case may be, to place the strings under greater or less tension, whichever is desired. On swinging the handle upwardly, for example, shaft 36 is rotated counter-clockwise in Figures 1 and 5 and the strings are placed under increased tension, to an extent determined by the distance the handle is swung. Therefore, the pitch will be changed, and the user by holding the handle in the selected position while the notes or chords are still sounding, causes a direct, sustained change of pitch. If the player desires a vibrato effect, the handle may be oscillated during the sounding of the chord or note, to cause a continuously varying or fluctuating pitch, thereby producing a vibrato.

In shaft 36 there are also formed diametrically extending openings in which are fixedly engaged a pair of elongated rods 52 of spring material, tensioned to normally flex to a straight form as shown in Figure 3. The rods, at their other ends, are loosely, slidably engaged in openings 54 formed in the bight 16. Thus, it will be seen that each time the handle 48 is released, the springs 52 will immediately return the shaft 36 to its normal posi-

tion, in which the strings **42** are in their normal tuned condition or pitch. The rods **52**, of course, flex into a longitudinally curved shape each time the shaft **36** is rotated in one or the other direction during the changing of the pitch by the player.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, said construction only being intended to be illustrative of the principles of operation and the means for carrying out said principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. A pitch changing attachment for a stringed instrument comprising a bracket adapted for connection to the instrument; a main support member of approximately U-shaped configuration connected at one end to said bracket and including laterally spaced arms; a shaft journalled in and extending between the arms; means spaced longitudinally of the shaft and disposed between the arms for connecting a plurality of strings of the instrument to the shaft in position extending at least partially there about, whereby to change the pitch of the strings responsive to rotation of the shaft; handle means rigid with the shaft and adapted for swinging by the user to effect said rotational movement of the shaft; and resilient, yielding means interposed between the shaft and said member, under tension effective to return the shaft to a normal, rest position following rotation of the shaft, comprising a pair of parallel, elongated, springs rods fixedly secured at one end to the shaft and projecting radially from the shaft, said rods at their other ends being loosely, slidably engaged in said member.

2. A pitch changing attachment for a stringed instrument comprising a bracket adapted for connection to the instrument; a main support member of approximately U-shaped configuration connected at one end to said bracket and including laterally spaced arms; a shaft journalled in and extending between the arms; means spaced longitudinally of the shaft and disposed between the arms for connecting a plurality of strings of the instrument to the shaft in position extending at least partially there about, whereby to change the pitch of the strings responsive to rotation of the shaft; handle means rigid with the shaft and adapted for swinging by the user to effect said rotational movement of the shaft; and resilient, yielding means interposed between the shaft and said member, under tension effective to return the shaft to a normal, rest position following rotation of the shaft, comprising a pair of parallel, elongated, spring rods fixedly secured at one end to the shaft and projecting radially from the shaft, said rods at their other ends being loosely, slidably engaged in said member, said spring rods extending in parallel relation to the arms in the space between the arms.

3. A pitch-changing attachment for a stringed musical instrument having a body and a plurality of strings lying substantially in a plane spaced closely from the body above the same, comprising: support means mountable on said body and including spaced arms; a shaft journalled on and extending between said arms transversely of the strings; means spaced longitudinally of the shaft for connecting the strings of the instrument to the shaft in position at least partially coiled about the shaft, for placing the strings under selected tension responsive to rotation of the shaft; handle means on the shaft for rotating the same; and at least one rod of spring material engaged at its opposite ends in the shaft and support means respectively, and tensioned to normally flex to a straight condition in which said rod lies in a plane parallel to the plane of the strings with the length of the rod substantially paralleling the length of the strings, said rod in its straight condition extending as a relatively rigid connector between the shaft and the support means normally holding the shaft against rotation from a selected, normal position, the rod flexing upwardly and downwardly out of said plane on rotation of the shaft in respectively opposite directions, to yieldably resiliently oppose rotation of the shaft in either direction.

4. A pitch-changing attachment for a stringed musical instrument having a body and a plurality of strings lying substantially in a plane spaced closely from the body above the same, comprising: support means mountable on said body and including spaced arms; a shaft journalled on and extending between said arms transversely of the strings; means spaced longitudinally of the shaft for connecting the strings of the instrument to the shaft in position at least partially coiled about the shaft, for placing the strings under selected tension responsive to rotation of the shaft; handle means on the shaft for rotating the same; and at least one rod of spring material engaged at its opposite ends in the shaft and support means respectively, and tensioned to normally flex to a straight condition in which said rod lies in a plane parallel to the plane of the strings with the length of the rod substantially paralleling the length of the strings, said rod in its straight condition extending as a relatively rigid connector between the shaft and the support means normally holding the shaft against rotation from a selected, normal position, the rod flexing upwardly and downwardly out of said plane on rotation of the shaft in respectively opposite directions, to yieldably resiliently oppose rotation of the shaft in either direction, said rod flexing out of its straight condition to a relatively small extent in each direction, to limit rotation of the shaft in opposite directions to a correspondingly small number of degrees.

5. A pitch-changing attachment for a stringed instrument having a body and strings spaced outwardly from the body and terminating short of one end of the body, said attachment being adapted for disposition wholly on the exterior surface of the body between said one end of the body and the strings and comprising: a support adapted to lie flat against the surface of the body and so proportioned as to extend outwardly from the body a distance only slightly greater than the distance the strings are disposed outwardly from the body, said support including spaced arms; a shaft journalled at its ends upon and extending between said arms, normally to the length of the strings; means spaced longitudinally of the shaft for connecting the strings to the shaft in position at least partially coiled about the shaft, whereby to place the strings under a selected tension responsive to rotation of the shaft in a correspondingly selected direction; handle means secured to the shaft for rotating the same; and means for resiliently, yieldably opposing rotation of the shaft in either direction and for normally maintaining the shaft against rotation from a normal, starting position, comprising straight spring rods connected at one end to the shaft and extending radially of the shaft, said rods at their other ends being slidable in directions longitudinally of the rods within said support, said rods being so tensioned as to normally flex to a straight condition forming relatively rigid connectors between the shaft and support tending to hold the shaft against rotation from said starting position thereof, the rods being flexible longitudinally both toward and away from said surface of the body responsive to rotation of the shaft in respectively opposite directions, to yieldably resiliently oppose said rotation of the shaft.

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