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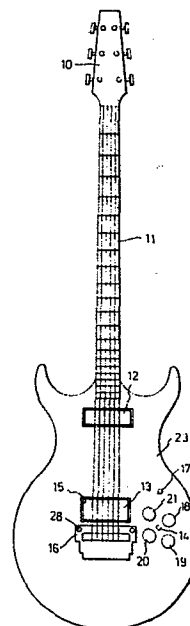
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(54)

Improved electric guitar.

(57)

An electric guitar has a body which has a rigid back and side walls defining an internal cavity covered by a flexible table 23. A pickup 13 is rigidly attached to the back of the body and projects upwardly from the cavity through an aperture 15 in the front table into a location to cooperate with the strings. A transducer is mounted to the underside of the table which is provided with bracing within the cavity. With this arrangement, the guitar can either be used as a conventional electric guitar, as an acoustic guitar without electrical amplification, or as an amplified acoustic guitar using the transducer.

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DESCRIPTIONIMPROVED ELECTRIC GUITAR

This invention relates to an improved electric guitar and is more especially directed at providing an electric guitar which can optionally be used as an acoustic or amplified acoustic guitar.

5 Traditionally for proper operation of an electric guitar, especially at high volumes, the electric guitar has been constructed with a solid body to which electromagnetic pickups have been mounted for sensing vibrations of the strings to produce a signal which can be
10 amplified as the instrument output. While very popular and of considerable use for certain of the more popular types of modern music, such guitars cannot produce any substantial degree of audible sound if used without the electrical pickup and amplification and also do not
15 provide the tone and musical qualities required of a conventional acoustic guitar which is used for playing more traditional and classical types of guitar music. Attempts have been made to amplify the music obtained from acoustic guitars, which have a thin-walled hollow body, by
20 mounting a transducer to the face or some other portion of the body in order to sense vibrations of that body portion and produce an electric signal which can be amplified. However, this solution is by no means fully satisfactory in that feedback and other problems can arise, especially

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when a substantial degree of amplification is being used, causing a distortion of the output.

The present invention is directed at providing a guitar which has the more beneficial characteristics of
5 both the amplified acoustic and conventional electric guitars and yet which can also be used without any electrical amplification whatsoever to produce a direct sound of good quality when the player requires, as for example when playing in a confined space or when
10 practising.

According to the present invention there is provided an electric guitar comprising a hollow body with a neck rigidly attached thereto for tensioning strings attached to a bridge carried on the front face of the
15 body, said body comprising a rigid back and sides defining the rear and sides of an internal cavity and a flexible front table covering the cavity and to which the bridge is secured, an aperture being provided through said table with an electric pickup securely mounted to the rigid back
20 of the body within the cavity projecting through the aperture to a location for cooperation with the guitar strings. Preferably, one pickup, the lead pickup, is provided closely adjacent the bridge with a second, rhythm, pickup being provided between the first pickup and
25 the neck. Preferably the second pickup can be provided projecting from a portion of the table rigidly secured to the metal of the body so that the vibrating part of the

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table which is used when the guitar is in its acoustic mode is that portion of the table which covers a cavity through which is rigidly secured the first, lead, pickup to project through the aperture in the table. A

5 transducer for allowing the guitar to be used to provide an output similar to that of an amplified acoustic guitar can be secured to the undersurface of the flexible table within the cavity in the body. As well as conventional controls for controlling the volume and tone of the lead
10 and rhythm pickups an additional switch may be provided on the front of the guitar for controlling whether the guitar is being used in its electric or amplified acoustic mode.

In order to obtain proper vibration of the table over the cavity to provide good acoustic properties to the
15 guitar when used in its acoustic mode, it is desirable that the cover be made of a fairly resilient material, for example spruce, and also be provided with suitable stiffening on its rear side by a system of spaced bracing. The bridge can then be relatively massive, being secured
20 through the table to the bracing, with the result that the strings of the instrument are adequately supported for use in electric mode and provide a good quality sound vibration to the vibrating table in the acoustic mode of the guitar.

25 The invention will be further described, by way of example, with reference to the accompanying drawings, in which:

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Figure 1 is a plan view of a guitar embodying the invention;

Figure 2 is a diagrammatic plan view of the instrument with the top or table removed showing the internal cavity;

Figure 3 is a diagrammatic side elevation view of the guitar with the stringing and bridge omitted; and

Figure 4 is a view of the table from below.

Referring to the drawings, in Fig. 1 there is shown a guitar having a body from which projects a neck provided with the usual peg head 10. Strings are tensioned from the peg head over a fret board on the neck to a bridge 16 mounted on the front table 23 of the guitar body. Projecting from the guitar body are a rhythm pickup 12 and a lead pickup 13 for sensing vibrations of the strings when the guitar is being used in its electric mode. Also mounted on the front table 23 of the guitar are the various controls illustrated as a three position pickup selector switch 17 for use when the guitar is in its electric mode, the switch being movable between three positions in which either the lead pickup 13 only, both pickups or the rhythm pickup 12 only are in operation. A second switch 14 is actuatable between positions to control whether the guitar is in its electric or its amplified acoustic mode.

Knobs 19 and 21 are volume control knobs operable respectively when the guitar is in its amplified

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acoustic and electric modes. The knob 18 is a tone control for the rhythm pickup and it also has a push-pull switch to control a conventional variable coil tap arrangement for the rhythm pickup. The knob 20 serves a similar function for controlling operation of the lead pickup.

While these particular control arrangements have been indicated it will be appreciated that these may be varied as convenient, for example a common volume control could be used for both the amplified acoustic and the electric modes.

As should be appreciated from Fig. 2, the body of the guitar has a substantially rigid and massive back and sides 32 surrounding an internal cavity 24. These portions of the body are sufficiently solid and rigid to act in a similar manner to the rigid body of a conventional electric guitar. Provided in the cavity 24 a mounting block 25 is shown rigidly attached to the back of the guitar while the body is also shown as comprising a recess 33 for receipt of the rhythm pickup. An acoustic pre-amplifier 31 is shown mounted in the cavity secured to the rigid side wall thereof.

The general internal arrangement of the guitar body can be appreciated from Fig. 3, where the cavity 24 with the mounting block 25 is visible with the lead pickup 13 projecting through an aperture 15 in the table 23. The rhythm pickup 12 is mounted in the aperture 33 in the body

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to project through an aperture 28 in the front of table 23. It will thus be appreciated that the rhythm pickup 12 projects from a rigidly supported, non-vibrating, portion of the table 23.

5 In order to provide good sound qualities to the vibrating portion of the table 23 covering the cavity 24, a preferred material for the table is spruce. In order to obtain good acoustic properties it is preferred for the bridge 16 to be made fairly massively of solid metal and
10 secured in position by bolts 28 which pass through the table 23 and engage a main piece 27 of bracing secured to the underneath of the table 23 within the cavity 24 as shown in Fig. 4. Radiating outwardly from the main piece 27 of the bracing towards the side wall 32 of the body are
15 arms 26. Also secured to the underside of the table 23 is a transducer 30 which is activated when the guitar is used in its amplified acoustic mode.

 Generally, with the construction as shown, it has been found that the electric guitar is of sufficiently
20 rigid construction to operate successfully as a conventional electric guitar and yet it can be simply switched so as to deactivate both the pickups and activate the transducer 30 and then be used to provide an output at least comparable with that obtained from an amplified
25 acoustic guitar. With no electric amplification at all a substantial and adequate volume output can still be obtained simply in a normal acoustic mode using the cavity

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24 as a sound box with the vibrating carefully braced table 23 of flexible wood thereabove.

While for normal high quality purposes it will be expected that the body of the guitar will be made 5 principally of wood, other materials, for example reinforced plastics, may be used with appropriate design changes from the construction exemplified in the drawings.

Also, while a fret board has been referred to above it is preferred that, instead, a pitchboard as described in 10 British patent specification no. 1511840 be used.

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CLAIMS

1. An electric guitar comprising a hollow body with a neck 11 rigidly projecting therefrom carrying means for tensioning strings attached to a bridge (16) carried on the front face of the body, characterised in that said body 5 comprises a rigid back and sides (32) defining the rear and sides of an internal cavity (24) and a flexible front table (23) covering the cavity and to which the bridge is secured, an aperture (15) being provided through said table with an electric pickup (13) securely mounted 10 (at 25) to the rigid back of the body within the cavity (24) projecting through the aperture to a location for cooperation with the guitar strings.

2. An electric guitar according to claim 1, characterised in that the pickup (13) is closely adjacent the 15 bridge (16).

3. An electric guitar according to claim 1 or 2, characterised in that a second pickup (12) is provided projecting from a portion of the table (13) rigidly secured to the back (32) of the body at a location (33) between the 20 first pickup (13) and the neck (11).

4. An electric guitar according to any preceding claim, characterised in that a transducer (30) is secured to the flexible table (23) whereby the guitar may be used as an amplified acoustic guitar.

25 5. An electric guitar according to any preceding

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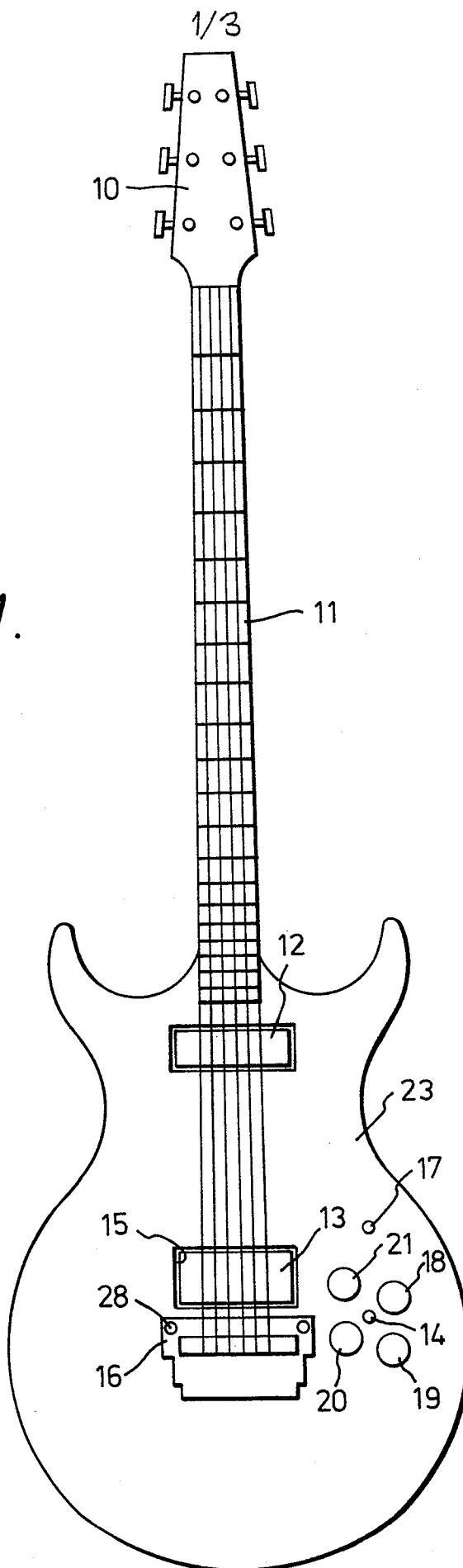
claim, characterised in that the underside of the table (23) within the cavity (24) has bracing (26,27) secured thereto to stiffen the table.

6. An electric guitar according to claim 5,
5 characterised in that the bridge (16) is substantially massive and secured through the table (13) to said bracing (26,27).

7. An electric guitar according to claim 6,
characterised in that the bracing comprises a main piece
10 (27) beneath the bridge (16) and to which the bridge is attached and arms (26) radiating from the main piece (27) towards the side wall of the guitar body.

8. An electric guitar according to any preceding claim, characterised in that a switch (14) is provided for
15 selective operation of the guitar as an electric guitar or as an amplified acoustic guitar.

9. An electric guitar according to claim 8,
characterised in that the switch (14) is provided on the front table (23) together with a switch (17) for selecting
20 either one or both of separate lead and rhythm pickups (12,13), means (19,21) for controlling the output volume and means (18,20) for controlling the tone from the pickups.

Fig.1.

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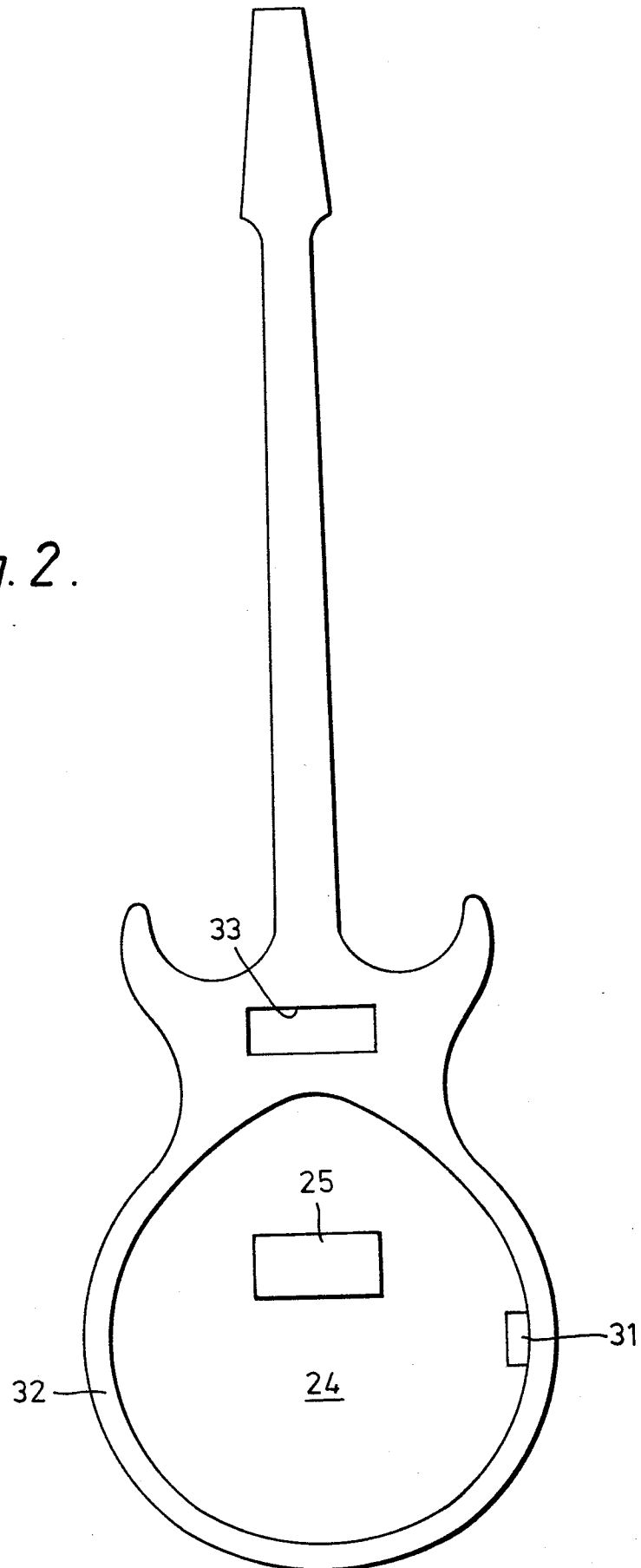
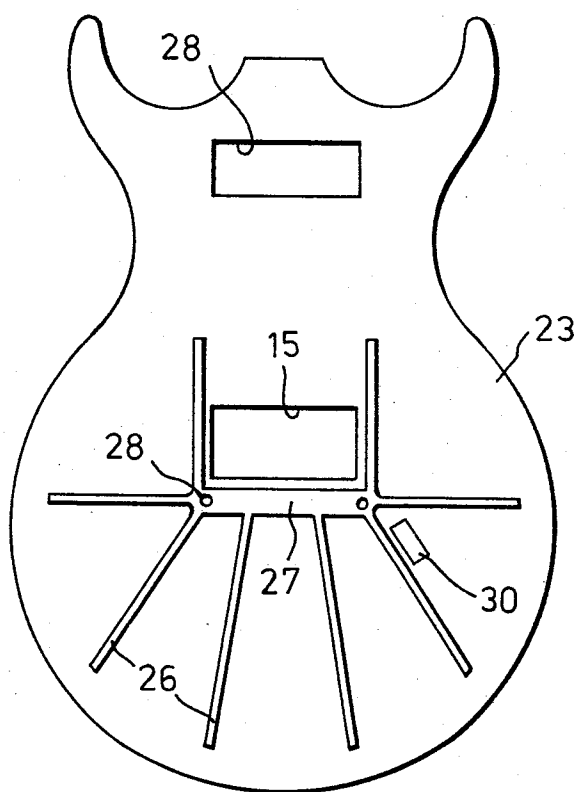
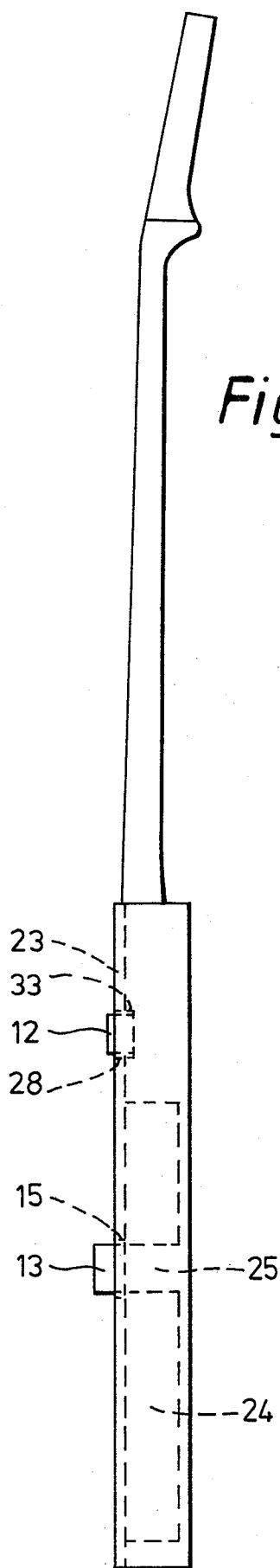
Fig. 2.

Fig. 3.*Fig. 4.*