Dec. 19, 1950 E. H. ALKIRE 2,534,939

PEDAL CONTROL FOR RHEOSTATS

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Fig. 1

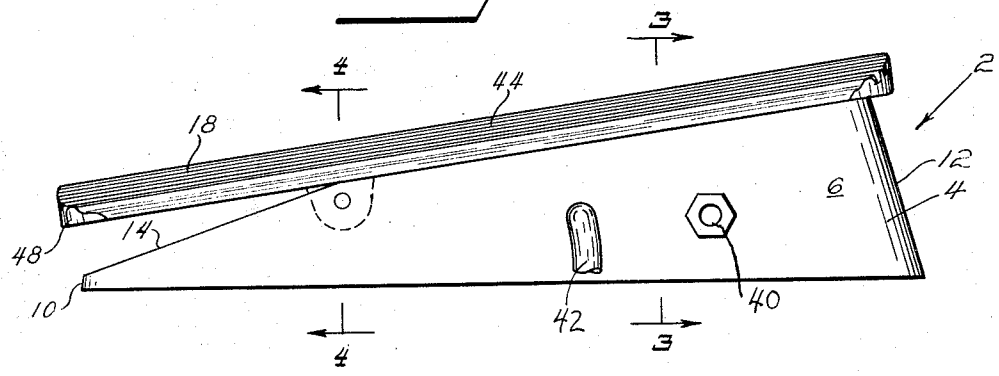
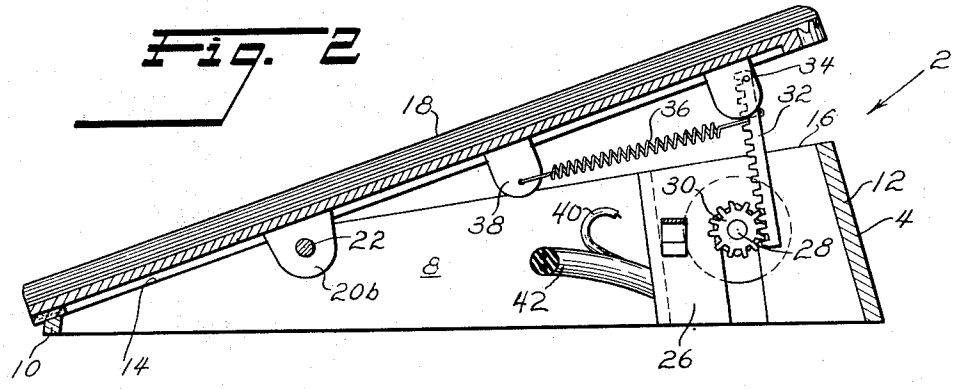


Fig. 2



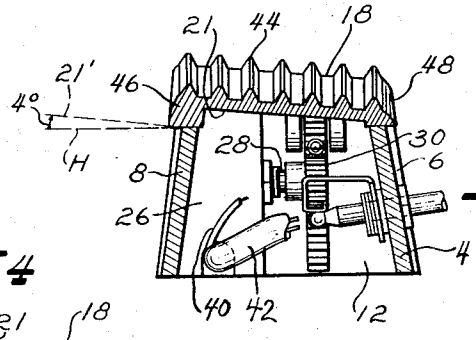
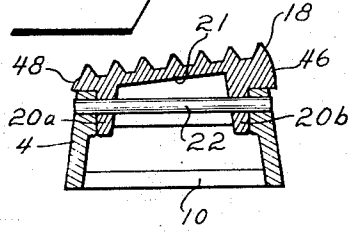


Fig. 3

Fig. 4



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PEDAL CONTROL FOR RHEOSTATS

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3 Claims. (Cl. 201—48)

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This invention relates to pedal controls and, more particularly, to a pedal control for musical instruments.

In the playing of stringed instruments with which a steel is used, the body of the instrument is generally supported on the artist's right knee and, if the instrument utilizes an electric amplifier, the right foot rests on a control pedal. Prior to this invention, control pedals were pivoted to a base and had an upper surface lying in a plane normal to the vertical. The fulcrum was usually in the center of the pedal, and the entire arrangement was based on the assumption that the artist's foot would extend straight forward. The difficulties which this invention intends to cure are these: When the artist's foot rests flat on a prior art pedal, rocking of the foot so as to pivot the pedal also caused the right knee to raise and lower, thereby deleteriously changing the level of the instrument. The unnatural position of the foot and knee also induced fatigue in the artist's leg muscles so as to cause cramps or, where nervousness was a factor, set up an involuntary shaking of the entire leg. If the artist points his foot to the right in effort to compensate for this, then his foot does not rest flat against the pedal. Depression of the pedal then entails both a forward and sidewise tilting of the foot about the ankle joints. The object now is to provide a pedal with a tread surface slanting downwardly from left to right, and with a fulcrum matching, in location lengthwise of the pedal, the ankle fulcrum about which the foot pivots. Thus, it is intended to provide a pedal which enables the artist to sit with his knees apart, and with his right foot turned somewhat to the right, and to keep his foot flat against the pedal tread during all operations of the pedal while still keeping his right knee in a uniform, comfortable position.

These and other objects will be apparent from the following specification and drawings, in which:

Fig. 1 is a side elevation of the pedal in depressed position;

Fig. 2 is a vertical section taken lengthwise through the pedal when in raised position showing the interior mechanism;

Fig. 3 is a vertical section taken transversely through the pedal along the line 3—3 of Fig. 1 looking in the direction of the arrows; and,

Fig. 4 is a vertical section taken transversely through the pedal along the lines 4—4 of Fig. 1 looking in the direction of the arrows.

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Referring now to the drawing in which like elements are denoted by similar reference numerals, the pedal control unit indicated generally at 2 includes a base 4 preferably cast of aluminum alloy or other suitable light but rugged material with right and left-hand side walls 6 and 8 and rear and front walls 10 and 12, all integrally joined in one piece. Also included in the casting is a rheostat pocket 26 described below. It will be noted further that the side walls of the base 4 have top edges 14 steeply inclined upwardly from rear wall 10 forwardly for about one-third of the length of the base, and thence gently inclined upwardly and forwardly as shown at 16 for the remainder of the base length. The juncture of these edges forms a false fulcrum about which a pedal 18 rocks, while top edges 10 and 14 constitute stops for the pedal respectively at its extreme up and down positions.

As shown best in Fig. 4 pedal 18, also cast preferably of aluminum, is formed with a pair of lugs 20*a*, 20*b* depending from the pedal under-surface 21. The pivotal connection of pedal 18 to base casting 2 is accomplished by a pivot pin 22 passing through suitable openings in side walls 6 and 8 and lugs 20*a* and 20*b*, the holes being arranged so that the under-surface 21 of the pedal rolls just above the juncture of edges 14 and 16.

Before further discussion of the important form of pedal 18, it will be observed that the immediate object of the mechanism is to operate a rheostat (not shown) contained in the rheostat pocket 26 of base casting 2. The shaft 28 of the rheostat projects outwardly through the pocket wall and carries a pinion 30 driven by a rack 32 pivoted between ears 34 on the under-surface 21 of pedal 18. Rack 32 is pulled against pinion 30 by a tension spring 36 stretched between the rack and a lug 38 on the pedal under-surface. Suitable input and output connections 40, 42 are wired to the rheostat so that when pedal 18 is raised towards the position shown in Fig. 2, rack 32 rotates pinion 30 counter-clockwise to turn the rheostat towards its off position. Then as pedal 18 is rocked forwardly about pivot pin 22 towards the Fig. 1 position, the rheostat is turned clockwise so as to increase the volume or power of the electrical instrument with which it is in circuit via connections 40, 42.

In operation, pedal 18 is maintained at varous angular positions between the extremes illustrated in Figs. 1 and 2, with the instep of the artist's foot substantially over pivot pin 22 and

with the sole of the shoe planted flat against the working surface of tread 44. The artist's knees are separated somewhat wider than the feet and, in this position, the right foot is angled off to the right, and the sole of the shoe is inclined downwardly from left to right. This is because the ankle most easily turns about an axis parallel to the axis about which the knee swings.

Referring particularly to Fig. 3, the dash line 21' extending to the left represents an extension of the line of the pedal under-surface 21, and dash line H denotes the horizontal, the angle therebetween of four degrees being the angle of sidewise inclination of pedal 18 and of the working surface of tread 44. The inclination is obtained by forming right-hand lug 20a somewhat shorter than left-hand lug 20b, and uniform engagement of the edges of under-surface 21 of pedal with top edges 14, 16 of base 4 result from the downwardly projecting left-hand edge 46 of pedal 18 thickened, or deeper as compared with its right-hand edge 48.

The invention detailed above is not limited to the specific embodiment illustrated but is intended to cover all substitutions, modifications and equivalents within the scope of the following claims.

I claim:

1. In a control unit, an elongate base having a relatively high front wall, a relatively low rear wall, and side walls therebetween, each of said side walls having a back portion substantially one-third the length thereof and a forward portion substantially two-thirds the length thereof, said back portion having a top edge inclined relatively steeply upwardly and forwardly from said rear wall to the intersection of said portions, said forward-portion having a top edge inclining relatively gently from said intersection upwardly and forwardly to said front wall, a pivot extending substantially transversely of said base substantially at said intersection, an elongate pedal, means mounting said pedal on said pivot at a location substantially one-third along the length of said pedal from rear to front whereby said pedal may be rocked about said pivot between two extreme positions, in the first of which position said pedal engages against the top edges of said forward portions and in the second of which positions said pedal engages against the top edges of said back portions a rheostat affixed in said inset base, said rheostat having a rotatable shaft extending horizontally, a pinion on said shaft, and a rack pivoted beneath said pedal and drivingly engaging said pinion.

2. The combination claimed in claim 1, said pedal having an upper working surface inclined traversely from one longitudinal side to the other.

3. In the combination claimed in claim 1, a spring engaged between said rack and said pedal and arranged to maintain said rack against said pivot.

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