

[54] STEPPING MUSICAL MACHINE

119/1; 200/85 R, 86.5, 153 C

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[22] Filed: Aug. 12, 1974

[21] Appl. No.: 496,557

Related U.S. Application Data

[63] Continuation of Ser. No. 275,694, July 27, 1972, abandoned.

[30] Foreign Application Priority Data

Feb. 12, 1972 Japan..... 47-17539[U]
Feb. 18, 1972 Japan..... 47-20245[U]
Apr. 4, 1972 Japan..... 47-39726[U]

[52] U.S. Cl. 84/1.01; 84/423; 84/464; 84/477 R; 84/478; 84/DIG. 25

[51] Int. Cl.²..... A63J 17/00; G09B 15/04; G10C 3/14; G10H 5/00

[58] Field of Search 84/1.01, 1.16, 1.17, 464, 84/470, DIG. 25, 423, 471, 477 R, 478, 483;

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[57] ABSTRACT

A stepping musical machine for physical and acoustic training of children such that stepping-boards are arranged on a jumpy sheet, a net or the like stretched in a taut condition and which is adapted so that when children jump on the stepping-boards while playing on the machine particular sounds corresponding to the respective stepping-boards are produced.

1 Claim, 14 Drawing Figures

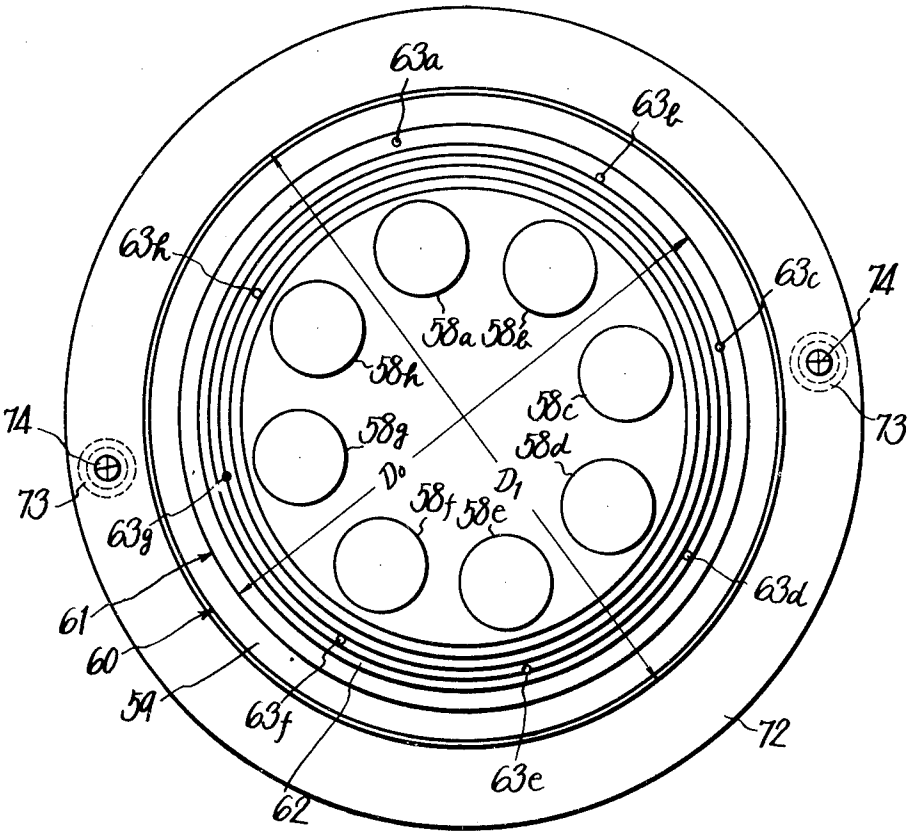


Fig. 1

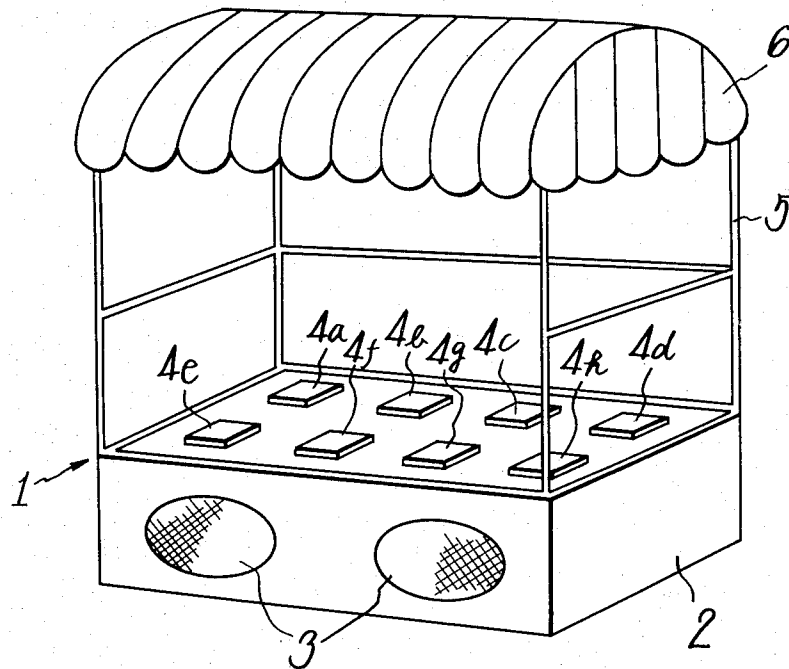


Fig. 4

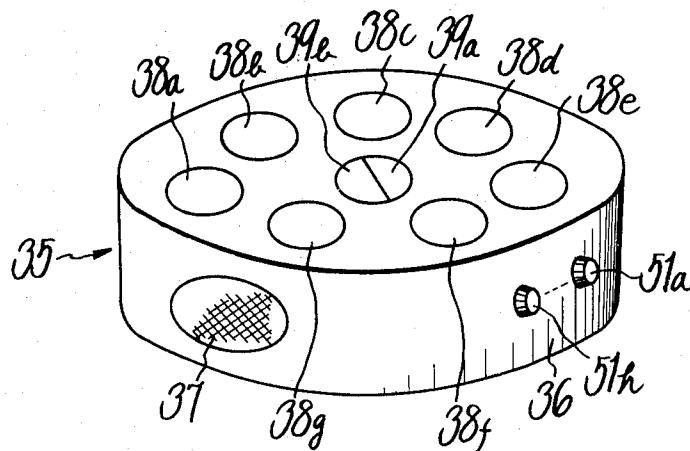


Fig. 2

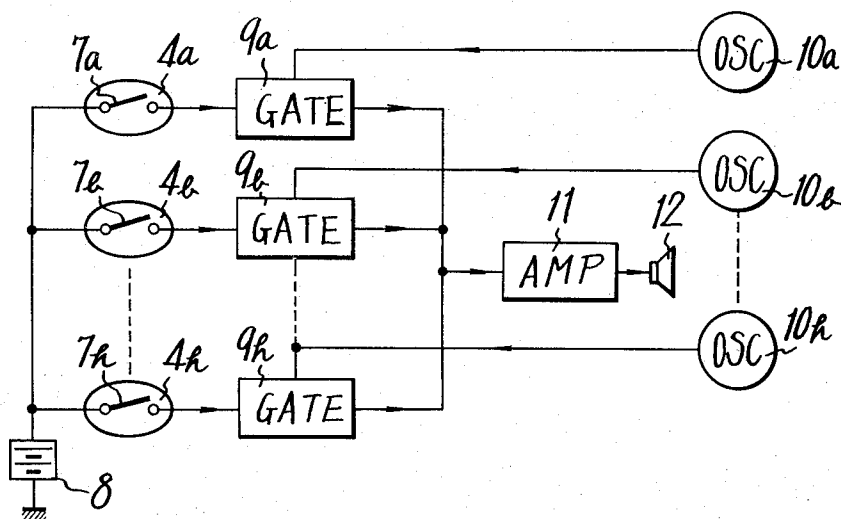


Fig. 3

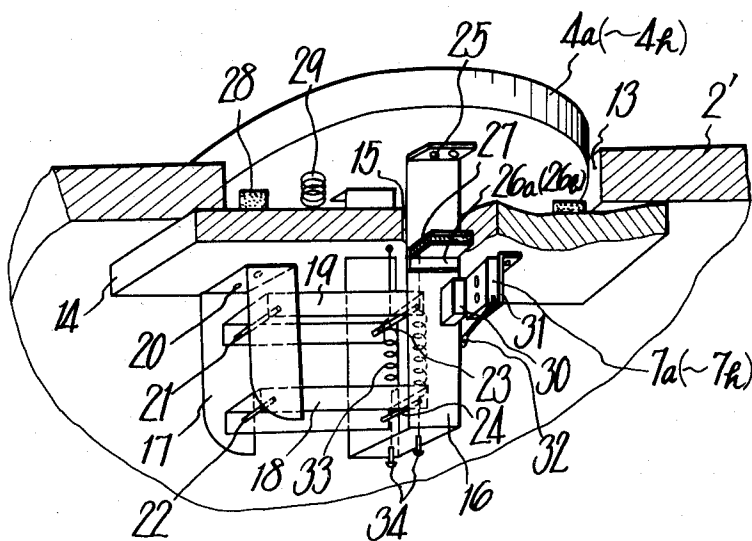


Fig. 5

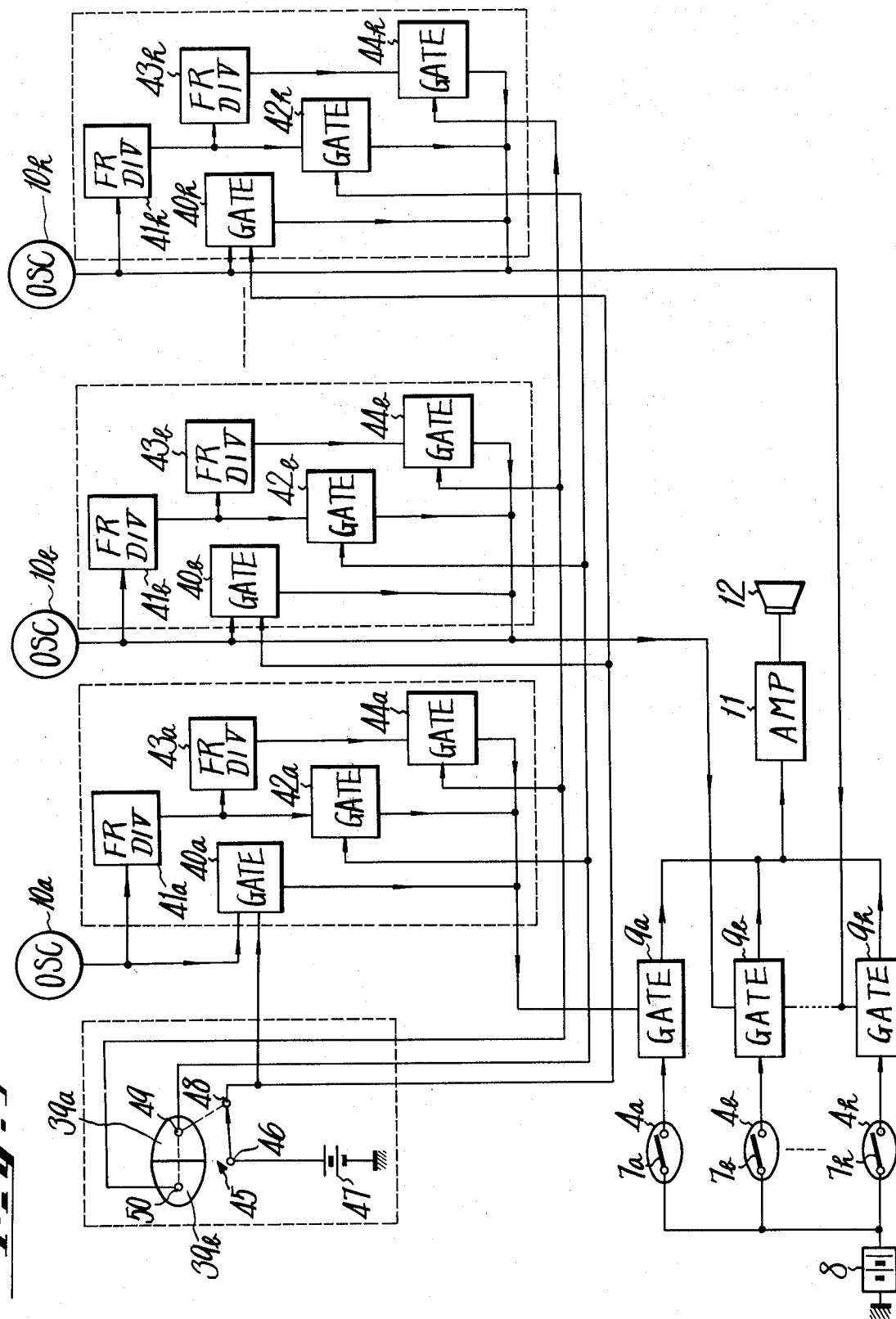


Fig. 1

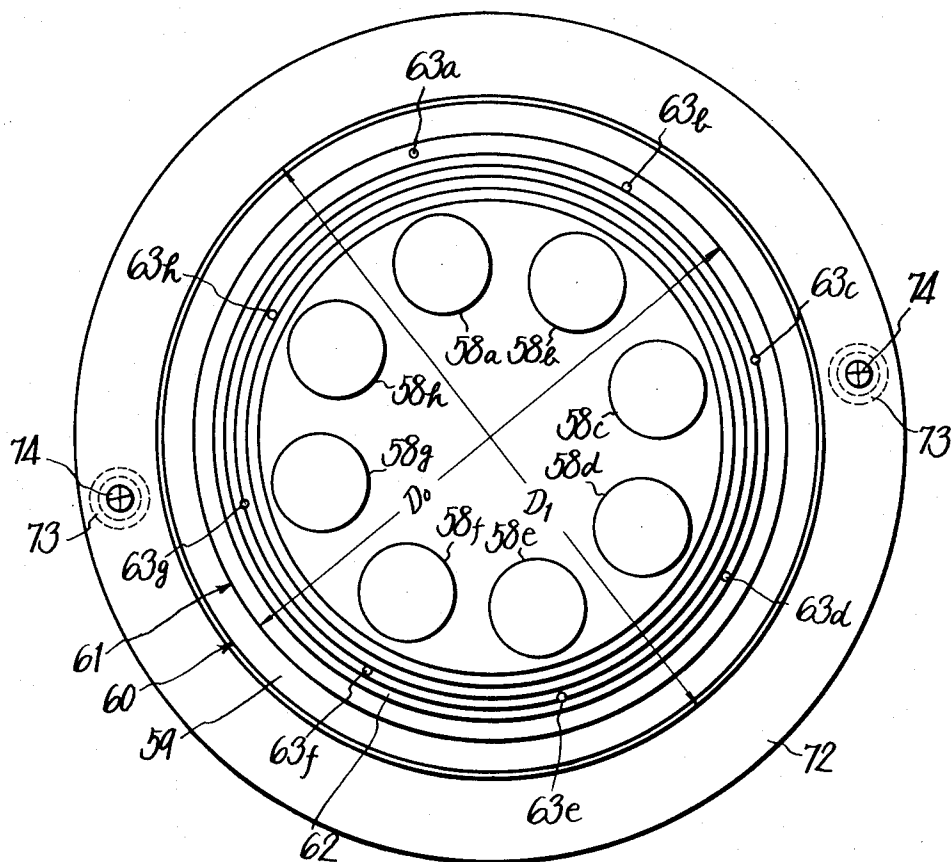


Fig. 2

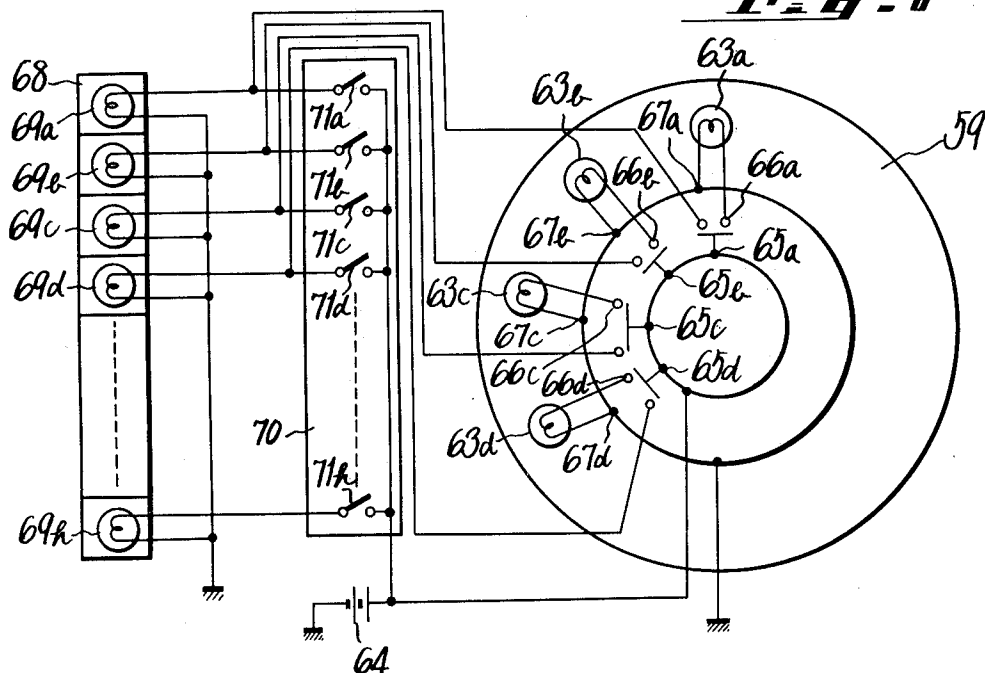


Fig. 9

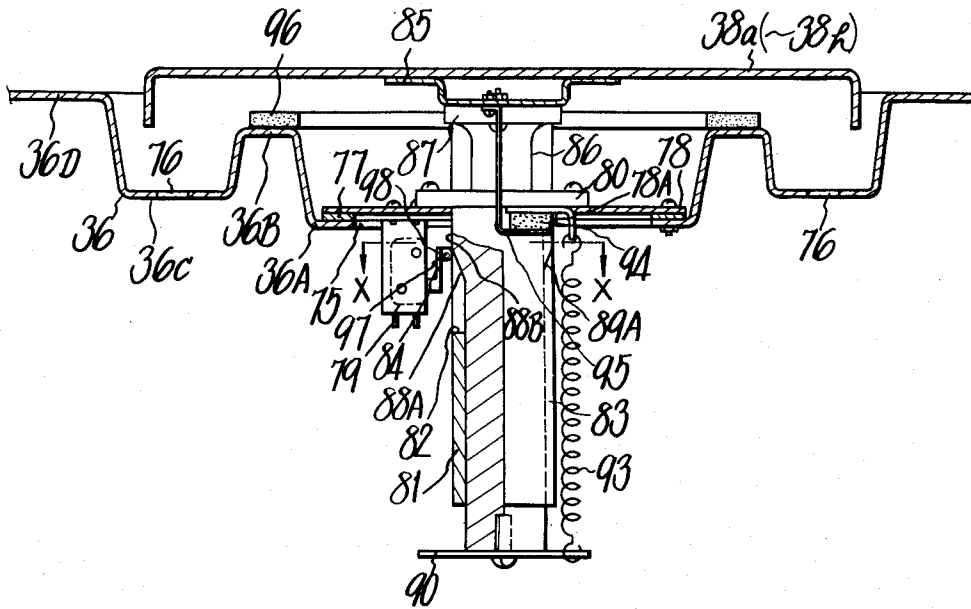


Fig. 10

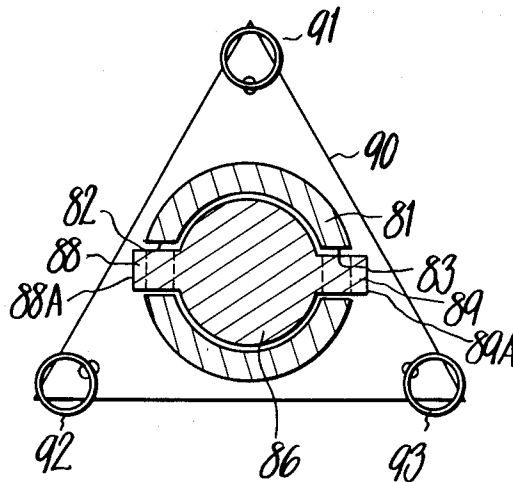


Fig. 11

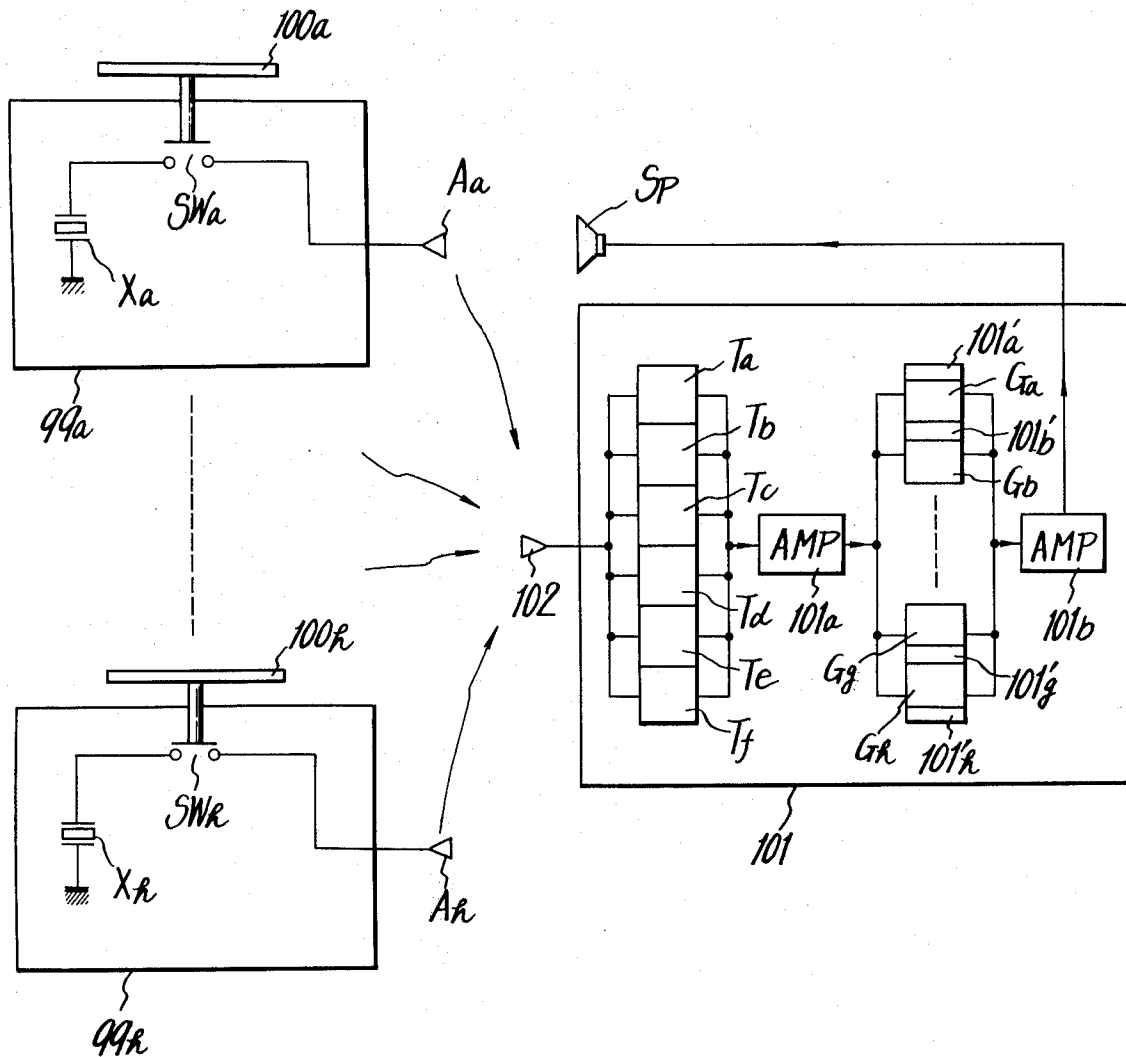


Fig. 12

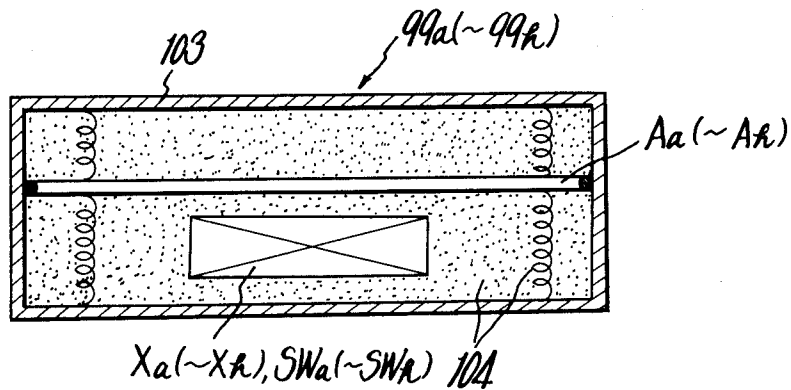


Fig. 13

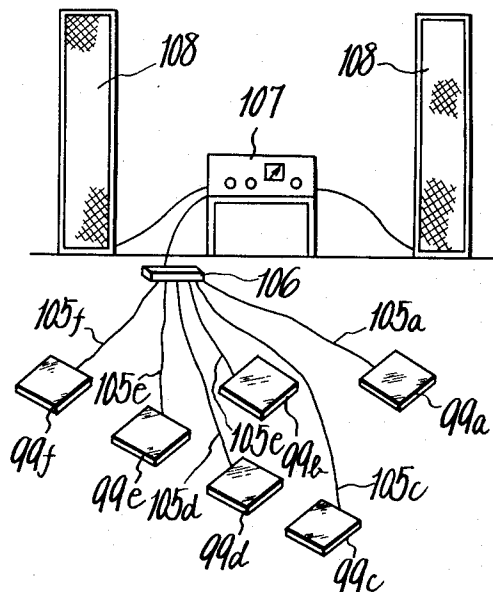
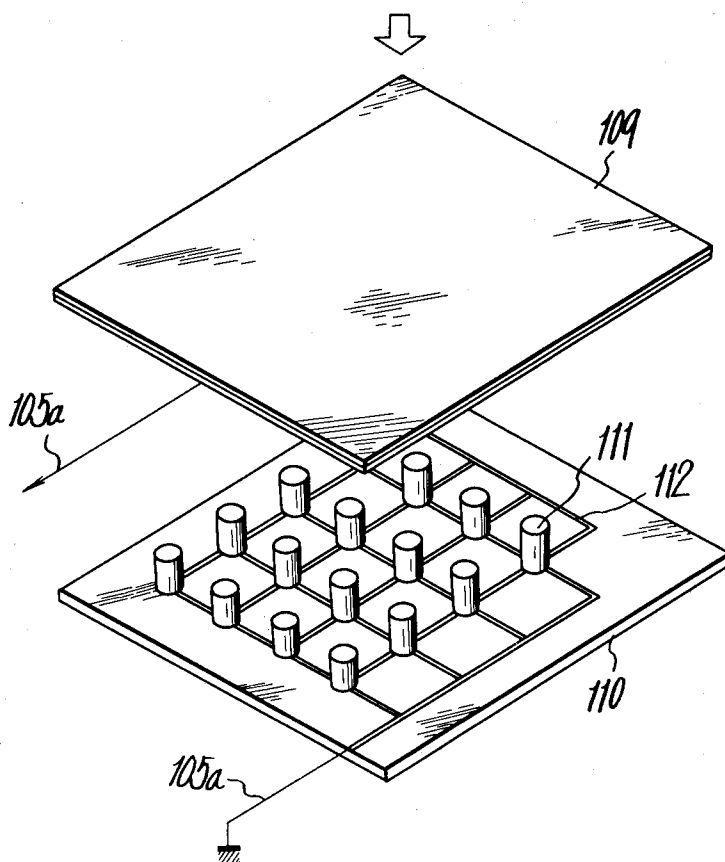


Fig. 14



STEPPING MUSICAL MACHINE

This is a continuation of application Ser. No. 275,694, filed July 27, 1972, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a stepping musical machine which is a combination of known sporting goods with a musical instrument, and more particularly to a stepping musical machine which is designed so that switching means associated with the stepping-boards are turned on and off by children jumping up on the stepping-boards to produce sounds of particular scales corresponding to the stepping-boards.

2. Description of the Prior Art

Sporting goods such as a trampoline and the like are known on which children play jumping up on an elastic sheet, while an apparatus which produces musical sounds by stepping on a stairs-like floor is also known under the name of do-re-mi-fa staircase. These sporting goods and musical apparatus are used independently of each other and not used in combination.

SUMMARY OF THE INVENTION

One object of this invention is to provide a stepping musical machine in which musical sounds are produced by children jumping up on the machine to enable physical and acoustic training of them simultaneously.

Another object of this invention is to provide a stepping musical machine which is suitable for physical training of children to enables them to respond rapidly to a horn of vehicles such as motor cars.

Another object of this invention is to provide a stepping musical machine which is suitable for acoustic training of children by producing musical sounds when they jump up on the machine simultaneously.

Another object of this invention is to provide a stepping musical machine which enables physical and acoustic training of children simultaneously by appealing to their eyes.

Another object of this invention is to provide a stepping musical machine in which stepping-boards producing sounds of the fundamental scales are arranged on a base. Another object of this invention is to provide a stepping musical machine in which a plurality of stepping-boards are arranged at random and they are coupled with sound producing means by wire or wireless.

Another object of this invention is to provide a stepping musical machine which produces sounds of the scales more than the number of stepping-boards used.

Another object of this invention is to provide a stepping musical machine which is adapted so that stepping-boards fall in parallel with a base when jumped on.

Still another object of this invention is to provide a stepping musical machine which has an adapter to permit many children to play on the machine at one time.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exterior perspective view of one example of a stepping musical machine of the invention;

FIG. 2 is a circuit diagram, for explaining electrical connections of the machine of FIG. 1;

FIG. 3 is a perspective view, partly in section, of a stepping-board used in the example of FIG. 1;

FIG. 4 is a perspective view of another example of this invention;

FIG. 5 is a circuit diagram, for explaining electrical connections of the example of FIG. 4;

FIG. 6 is a circuit diagram, for explaining another example similar to that of FIG. 5;

FIG. 7 is a plan view, for explaining indicating lamps and an adapter for use in this invention;

FIG. 8 is a circuit diagram for enabling indication and programming;

FIG. 9 is a side view, partly in section, for explaining another example of the stepping-board;

FIG. 10 is a cross-sectional view taken on the line X—X in FIG. 9;

FIG. 11 is a system diagram for explaining wireless transmitting and receiving apparatus used in this invention;

FIG. 12 is a cross-sectional side view of a separate-type stepping musical machine of this invention;

FIG. 13 is a cubic layout of a separate stepping musical machine of this invention; and

FIG. 14 is a perspective view of one example of switching means employed in the example of FIG. 13.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the drawings this invention will be described in detail. Reference numeral 1 indicates generally a stepping musical machine of this invention, which is equipped in recreation grounds, parks, kindergartens or the like, 2 its base portion, which is suitably shaped and has housed therein oscillators, amplifier and so on and has sound emission apertures 3 formed in side walls thereof. Reference numerals 4a to 4h designate jumping boards which are adapted to emit sounds corresponding to, for example, respective scales such as C, D, E, F, G, A, B and C when children jump thereupon and down onto them. The physical construction of each board is shown in FIG. 3 and will be described later on.

Reference numeral 5 identifies hand-rails which are stretched between poles planted at corners or marginal portions of the base portion 2. If necessary, the stepping musical machine 1 is covered with a roof 6.

The sound emitting apparatus disposed in the aforesaid base portion 2 consists of switches 7a to 7h which are closed by the downward movement of the boards 4a to 4h, as depicted in FIG. 2. The one contact of each switch is connected in common to an electrode of a power source 8, which is grounded at the other electrode, while the other ends of the switches are connected to gate circuits 9a to 9h respectively. The gate circuits 9a to 9h are supplied with signals with oscillation frequencies from oscillators 10a to 10h respectively and the outputs of the gate circuits 9a to 9h are connected together to a series circuit including an amplifier 11 and a speaker 12. The operation of this circuitry will be described. When a child gets on one of the boards 4a to 4h, the switch, for example, 7a is closed to permit the application of the signal with oscillation frequency from the oscillator 10a to the gate circuit 9a and a sound signal corresponding to C ("do") is fed through the gate circuit 9a to the amplifier 11, causing the speaker 12 to emit a sound corresponding to C through the sound emitting apertures 3.

In FIG. 3, there is illustrated the construction of each of the jumping boards 4a to 4h. An opening 13 is formed in an upper plate 2' of the base portion 2 in accordance with the configuration of each jumping board and the board slightly projects upwardly of the upper

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plate 2'. Reference numeral 14 indicates a limiting plate for limiting the downward movement of the board when the latter is stepped upon. The limiting plate 14 is bridged across the opening 13 and is fixed to the underside of the upper plate 2'. Reference numeral 15 identifies an aperture bored in the limiting plate 14, through which an inverted substantially U-shaped metal fitting 16 is passed. Reference numeral 17 designates a bracket for holding parallel links 18 and 19, which bracket is attached by screws 20 to the limiting plate 14. The parallel links 18 and 19 are pivoted at one end to the bracket 17 by pins 21 and 22 and at the other end to the metal fitting 16 by pins 23 and 24. The metal fitting 16 is fixed by screws 25 to the board and passed through the aperture 15 of the limiting plate 14 as described above. On both sides of the metal fitting 16 there are provided upward movement limiting metal fittings 26a and 26b in contact with the neighborhood of the aperture 15 of the limiting plate 14, by means of which the upward movement of the limiting plate 14 is limited. The metal fittings 26a and 26b are substantially L-shaped and buffer members 27 are provided on the metal fittings 26a and 26b on the side of the underside of the limiting plate 14. On the underside of each of the boards 4a to 4h there are provided suitable buffer members 28 and compression springs 29. The buffer member 28 serves as a damper when the board is pressed down and the compression spring 29 performs a similar function but acts to bias the board upwardly. Reference numeral 30 indicates a cam which is mounted on the side wall of the metal fitting 16 and presses an actuator 32 of a micro-switch (one of the switches 7a to 7h shown in FIG. 2) when the board is stepped down, actuating the micro-switch. Reference numeral 31 designates fittings for fixing the micro-switch to the limiting plate 14.

With the present invention, each of the boards 4a to 4h are constructed as described above, so that, for example, when the board 4a is stepped on, it goes down against the compression spring 29. Since the metal fitting 16 is coupled with the limiting plate 14 through the parallel links 18 and 19, the board 4a goes down substantially in parallel with the upper plate 2' of the base portion 2 regardless of the position on the board where it is stepped on, causing the cam 30 to actuate a corresponding one of the micro-switches 7a to 7h. Further, even if exposed to an excessive force, the boards 4a to 4h are supported by the upper faces of the limiting plates 14 with the buffer members 28 therebetween, and hence do not go down any further. Releasing the force applied to the board 4a, the board 4a rises due to the spring force of the compression spring 29 and the upward movement limiting metal fittings 26a and 26b move into engagement with the limiting plate 14 through the buffer member 27 to hold the board 4a in position.

Where tension springs 33 are interposed between the bottom of the metal fitting 16 and the underside of the limiting plate 14 in place of the compression spring 29 shown in FIG. 3, the board goes down in parallel with the upper plate 2' of the base 2 and rolling of the board can be avoided. Further, the spring force of the tension spring 33 can be adjusted relatively easily by adjusting screws 34.

FIG. 4 illustrates another example of this invention. In the figure, reference numerals 35, 36, 37 and 38a to 38g correspond to those 1, 2, 3 and 4a to 4g in FIG. 1. The number of the jumping boards is naturally limited

by the size of the base 2 and if the number of the boards disposed is small, not so many tunes cannot be played. In order to increase the number of tunes which can be played, the present example employs second jumping boards 39a and 39b in addition to the jumping boards 38a to 38g for the respective musical scales.

With reference to FIG. 5, a description will be given of the case where an octave switching mechanism is employed. In the figure, dashed blocks are novel parts and the others are the same as those in FIG. 2 and marked with the same reference numerals and no detailed description will be given of the latter.

Namely, gate circuits 40a to 40h are provided in addition to the gate circuits 9a to 9h and they are connected to the oscillators 10a to 10h respectively as shown in FIG. 5. The oscillation frequencies of the oscillators 10a to 10h are divided by first frequency divider circuits 41a to 41h respectively to provide frequencies which are lower than the oscillation frequencies of the oscillators 10a to 10h by one octave and which are applied to second gate circuits 42a to 42h respectively. The outputs of the first frequency divider circuits 41a to 41h are further applied to second frequency divider circuits 43a to 43h respectively to obtain frequencies which are lower than the oscillation frequencies of the oscillators 10a to 10h by two octaves and which are applied to third gate circuits 44a to 44h respectively. The outputs of each triad of the gate circuits 40a, 42a and 44a to 40h, 42h and 44h are applied to each of the gate circuits 9a to 9h through a common line, as depicted in the figure. The other inputs of the gate circuits 40a, 42a and 44a to 40h, 42h and 44h are supplied with signals from a power source 47 connected to a fixed contact 46 of a switch 45 which is turned on in response to the depression of the boards 39a and 39b shown in FIG. 4. Namely, contacts 48, 49 and 50 are connected to the gate circuits 40a to 40h, 42a to 42h and 44a to 44h respectively. A contact piece is normally in contact with the contact 48. With such an arrangement, when children are playing a tune by selectively stepping on the boards 38a to 38h, the contact piece of the fixed contact 46 of the switch 45 normally lies on the contact 48, so that the scales of, for example, C are applied from the gate circuits 40a to 40h to those 9a to 9h to turn on one or more of the switches 7a to 7h, emitting sounds of predetermined scales. Further, in the case of a low (high) scale unobtainable with any of the aforesaid seven boards, for example, when the boards 38a and 39a are simultaneously stepped on, the contact of the fixed contact 46 of the switch 45 is connected to the contact 49 to turn on the gate circuits 42a and 9a concurrently, emitting a sound of the scale lower (high) by one octave from the speaker 12. Stepping on the second boards 39a and 39b simultaneously, the contact piece of the fixed contact 46 is connected to the contact 50 to turn on the gate circuits 44a and 9a concurrently, producing a sound of a scale lower (higher) by two octaves from the speaker 12. The same is true of the other scales. The foregoing description has been given in connection with the case where the boards 39a and 39b and one of the boards 38a to 38g are simultaneously stepped on. However, the purpose can be served by making the board 39a or 39b inoperative and turning on and off the switch 45 held by a child while jumping or controlling the switch 45 with a remote switch held by the child. Further, it is also possible to bring the contact piece of the contact 46 to a predetermined octave position by previously

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coupling the switch 45 to a knob 51a shown in FIG. 4. While the foregoing has described the switching of three octaves, the switching of n 's octaves is also possible. In the foregoing, the oscillation frequencies of the oscillators 10a to 10h are divided to provide frequencies different from the original ones by one octave but it is possible to provide oscillators whose oscillation frequencies differ by one octave for the respective gate circuit groups.

FIG. 6 illustrates another example of this invention which has a semitone switching function and which is similar in construction to the example of FIG. 5 except the parts surrounded by a chain line. In dashed blocks, oscillators 41a' to 41h' having an oscillation frequency higher than that of the reference oscillator 10a by a semitone and oscillators 43a' to 43h' having an oscillation frequency lower than that of the oscillator 10a by a semitone are connected to the gate circuits 42a to 42h and 44a to 44h respectively in place of the aforementioned frequency divider circuits. The oscillation frequencies of the oscillators 10a, 41a' and 43a' are selected, for example, corresponding to C, C # and C b respectively and a switch 52a is provided for switching the oscillators 10a, 41a' and 43a'. The oscillation frequencies of the oscillators 10b, 41b' and 43b' are selected corresponding to D, D # and D b and a switch 52b is provided for switching these oscillators. The same procedure is applied to the other remaining oscillators. To this end, the contact pieces of fixed contacts 54a to 54h of the switches 52a to 52h are normally turned down to contacts 55a to 55h and the contacts 55a to 55h are connected to the gate circuits 40a to 40h respectively and contacts 56a to 56h and 57a to 57h are connected to the gate circuits 42a to 42h and 44a to 44h respectively. These switches 52a to 52h are respectively associated with the knobs 51a to 51h shown in FIG. 4. With such an arrangement, when a child is about to play a tune by stepping on the boards 38a to 38g corresponding to the scales of C major and the tune to be played is, for example, in F major, only the oscillator corresponding to B is changed over by the switch to the oscillator whose oscillation frequency is lower than that of the reference oscillator by a semitone, thus playing the tune of F major. In a similar manner, scales in respective majors or minors can be obtained.

The example of FIG. 6 has been described separately to employ oscillators whose oscillation frequencies are higher and lower than that of the reference oscillators by a semitone. In order to change the oscillation frequency of the reference oscillators intermittently, it is also possible, of course, to connect trimmer capacitors or the like of different values to the oscillation circuits in parallel and change over them.

In the above example, the switches 52a to 52h are attached to the base but it is also possible to dispose them outside of the base and change over them by a third person to a child's playing while following a score.

One example of a construction convenient for such an operation will hereinbelow be described in detail with reference to FIGS. 7 and 8. With the construction of this example, it is possible to achieve physical and acoustic training simultaneously while appealing to the eye. FIG. 7 is a plan view of a stepping musical machine similar to that shown in FIG. 4; which has the jumping boards 58a to 58h. The figure shows the upper flat surface 61 and the outer periphery of a base 59 in the neighborhood of the bottom thereof. The base 59 is

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substantially trapezoidal in cross-section. A score 62 is engraved or drawn on the upper flat surface 60 of the base 59 and scale indicating lamps 63a to 63h corresponding to the boards 58a to 58h are disposed on the score and switchingly lighted when the boards are stepped on, or alternatively, an indicator board with a score drawn thereon is placed in front of the machine to indicate the position of the lamp on the score being lighted. A child on the machine steps on the boards while observing the position of the lamp being lighted.

In FIG. 8, the indicating lamps 63a to 63h indicating the scales on the score 62 of the machine 59 are grounded at one end; the positive side of a power source 64 having the negative side grounded is connected to movable contacts 65a to 65h which move in ganged relation to the boards 58a to 58h respectively; the other ends of the indicating lamps 63a to 63h are connected to fixed contacts 66a to 66h respectively; and the other fixed contacts 67a to 67h are connected to ends of indicating lamps 69a to 69h indicating the scales on a score of an indicating board 68. The indicating lamps 69a to 69h are grounded at one end and connected at the other end to the positive side of the power source 64 through normally opened switches 71a to 71h of an operating board 70.

With this construction, when a child gets on one of the boards 58a to 58h, the scale corresponding to the board being stepped on is indicated both on the indicating board and on the machine and, by the operation of the switches 71a to 71h of the operating board 70, it is possible to provide an independent indication instructing the board to be stepped on. The foregoing examples have been described in connection with the case where the scales are changed in response to the fall of the boards but cries of animals can be produced, in which case pictures of the animals are indicated.

In order that many children may play on the base 59 of the machine such as shown in FIG. 7, the diameter D_0 of the base 59 must be selected appreciably large. The base 59 actually produced was 1,380mm in the diameter D_0 , 200 mm in height and 1,600 mm in the diameter of the bottom. Thus, an increase in the size of the base 59 introduces a difficulty in the fabrication of the base itself in terms of strength and so on and causes inconvenience in its transportation.

To avoid this, the stepping musical machine is produced small and with a central opening D_1 of, for example, a doughnut-shaped step 72 is selected a little greater than the diameter D_0 of the base 59 and the step is detachably assembled with the base 59. If necessary, legs 73 can be attached by oval counter-sunk screws 74 to the step 72 as in FIG. 7. Another example of the boards 38a to 38h is shown in FIGS. 9 and 10. With the illustrated construction, the boards can be produced at low cost and they go down in parallel and do not twist regardless of the position thereon where they are stepped on, ensuring actuation of the micro-switches.

In FIG. 9, reference numeral 36 indicates a circular base similar to that depicted in FIG. 4. A plate portion 36B is formed immediately outside of a central plate portion 36A of the base 36 at a position higher than the latter and a plate portion 36C is formed outside of the plate portion 36B at height between the plate portions 36A and 36B and the marginal portion of the plate portion 36C is bent upward to form a plate portion 36D higher than the plate portion 36B. The board 36 is secured to the base with the marginal plate portion 36D being directly attached thereto. A round aperture 75 is

formed in the central plate portion 36A and a circular aperture 76 is formed in the plate portion 36C.

A disc 78 is attached to the central plate portion 36A with a circular rubber plate 77 being interposed therebetween and a microswitch 79 is mounted on the disc 78 on underside thereof. Further, a cylindrical member 81 having a flange 80 integrally formed at the upper end thereof is inserted into an aperture formed in the disc 78 and the flange 80 is secured to the disc 78 to thereby fix the cylindrical member 81 to the base 36. In this case, notches 82 and 83 are formed in the cylindrical member 81 at diametrically opposite positions thereof, which notches extend upwardly from the central portion of the cylindrical member 81 in its axial direction, and the one notch 82 is formed to face an actuator 84 of the aforesaid micro-switch 79.

While, the marginal portion of each of the disc like boards 38a to 38h is bent down. A disc 85 bent with its central portion projecting down is attached to the underside of the board and a flange 87 formed at the upper end portion of a central shaft 86 is secured to the disc 85 thereby to fix the shaft 86 to the board. The outer diameter of the central shaft 86 is a little smaller than the inner diameter of the aforesaid cylindrical member 81 and has formed integrally therewith projections 88 and 89 having tapered lower end portions 88A and 89A at the diametrically opposite positions thereof upwardly of its central portion in its axial direction.

The central shaft 86 secured to the board is inserted into the cylindrical member 81 from above. In this case, the projections 88 and 89 formed on the central shaft 86 are engaged with the notches 82 and 83 of the cylindrical member 81 respectively. Accordingly, the central shaft 86, that is, the board does not rotate relative to the base 36. The lower end face of the central shaft 86 projecting out from the lower end of the cylindrical member 81 has attached thereto, for example, a triangular plate 90 and biasing springs 91 to 93 are stretched between lugs 78A of the disc 78 and corners of the plate 90, by which the central shaft 86, that is, the board is biased upwardly. Further, an engaging plate 94 is attached, for example, to the underside of the disc 78, while a substantially L-shaped engaging piece 95 is attached to the disc 85 secured to the board. When the board is biased upwardly described above, the engaging piece 95 abuts with the plate 94 as shown, thus holding the board at a predetermined height.

An annular buffer member 96 made as of felt is mounted on the plate portion 36B of the base plate 36.

With the construction described above, when no load is applied to the board, the board is held at the predetermined height as described above, in which case a roller 97 attached to the free end of the actuator 84 of the switch 79 faces the tapered surface 88A of the projection 88 formed on the central shaft 86 and the actuator 84 does not press an actuating member 98 to hold the switch 79 in the off state and to produce no sound. When a child jumps on the board, the board falls against the biasing force of the springs 91 to 93 with the central shaft 86 being guided by the cylindrical member 81 and the roller 97 attached to the actuator 84 of the switch 79 is urged against the tapered surface 88B of the projection 88 formed on the central shaft 86, by which the actuating member 98 is pressed to turn on the switch 79. As a result of this, a predetermined sound is produced through a sound generator, though not shown. In this case, the underside of the board

abuts against the buffer member 96, so that the downward movement of the board is thereby limited.

Mud, water and so on may get in a gap between the board and the marginal plate portion 36D of the base plate but they can be drained out through the aperture 76 formed in the plate portion 36C.

Also, it is possible to attach a cylindrical member to the board and a shaft is provided on the base unlike the illustrated example. Further, it is also possible for a sound producing member to be directly actuated without controlling the switch when the board has fallen down to a predetermined position.

In the foregoing examples, a plurality of boards are arranged on the base, so that their arrangement cannot be changed as desired. This defect can be overcome in other examples of this invention, which will be described in connection with FIGS. 11 and 12.

In the example of FIG. 11, a plurality of stepping musical machine units 99a to 99h are suitably arranged. The base of each unit has housed therein a transmitter device. Reference numerals 100a to 100h indicate boards which are adapted to turn on switches SWa to SWh or actuate hammers or the like to hit ultrasonic vibrators or the like corresponding to the scales, for example C to C when the boards are stepped on. Reference characters Xa to Xh designate mechanical filters, ultrasonic vibrators, tuning forks or the like, which are selected to oscillate at different frequencies corresponding to the respective units 99a to 99h. Reference characters Aa to Ah identify antennas for transmitting.

When the boards are selectively stepped on, signals of particular frequency are transmitted from the antennas Aa to Ah corresponding to the boards being stepped on and are received by an antenna 102 of a receiver 101. In the receiver 101, only particular frequency components from the respective transmitting antennas Aa to Ah are selected by selectors Ta to Tf; the selected signals are amplified by an amplifier 101a; gate circuits Ga to Gh, which produce scales determined by oscillators 101'a to 101'h are selective turned on by the amplified output of the amplifier; and a sound of a particular scale is produced from a speaker SP through an amplifier 101b.

FIG. 12 illustrates another example of this invention, in which a damper material and/or spring 104 is packed in a flexible base 103 and transmitters Xa to Xh and SWa to SWh are placed in the bases 103 respectively while being protected by the damper material 104 and transmitting antennas Aa to Ah are wound respectively on the inner surfaces of the bases.

With reference to FIGS. 13 and 14 a description will be made of a device which transmits a signal to the sound producing device by wire. The boards 99a to 99f are identical in construction with those shown in FIG. 12 but house therein only switches in this case. When the boards are stepped on by a child, the switches are turned on and their signal components are applied to a gate circuit 106 through a cables 105a to 105f and then to speaker apparatus 108 through an amplifier 107, producing a sound therefrom. Further, in FIG. 13 the boards 99a to 99f are provided separately. However, if oscillators including a plurality of switch devices or switches are provided in a sheet, for example, a carpet of wide width which has buffer characteristic and wires are bundled together in the sheet to provide an output, it is possible to freely change the scale arrangement by changing the wires through the switches in the way to the amplifier. One example of the switch

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housed in the boards 99a to 99f is shown in FIG. 14. The switch is desired to be turned on regardless of the position thereon where the child gets on. This can be achieved by providing a plurality of switches under the board but this method is expensive. In the present example, the underside of a sheet 109 of synthetic resin or the like having substantially the same size as the board is made to be electrically conductive and, if necessary, a checkered conductive pattern is formed on the underside of the sheet 109 and a lead wire 105a is led out therefrom. While, a plurality of conductive projections 111 are planted on a sheet metal or a non-metallic plate 110, which is attached to the underside of the sheet 109. Where the plate 110 is non-metallic, a checkered conductive pattern 112 is formed thereon, by which it is ensured that the switch is actuated irrespective of the position thereon where it is stepped on, because the sheet 109 is pressed in the direction indicated by an arrow. This construction can be simplified by moulding the aforesaid sheet together with the plurality of projections using conductive rubber or the like and by forming the plate 110 with a sheet metal. In this case, the sheet resistance of the plate 110 is different, so that its difference is associated with a variable resistor for volume control of the amplifier 107, thereby enabling volume control depending on whether the board is stepped on with one or both toes.

It will be apparent that many modifications and variations may be effected without departing from the scope of the novel concepts of this invention.

We claim as our invention:

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1. An educational and amusement musical device comprising, a base member comprising a horizontal surface where a person can walk around, a plurality of musical jumping boards mounted on a portion of said horizontal surface and spaced such that a person can selectively step on to selected musical jumping boards or can step on the portion of said surface not having musical jumping boards, means for supporting said musical jumping boards in such a manner that said musical jumping boards move up and down with their surfaces going down substantially in parallel with the horizontal surface of said base member when the person steps on said musical jumping boards at any position thereof, a plurality of musical tone producing means individually connected to individual jumping boards and respectively mounted in proximity to its respective jumping boards and the spatial arrangement of said plurality of jumping boards being spaced such that a person can selectively step on said horizontal surface during the selection of the next desired musical note, further including light means connected to and energized by said jumping boards as they are stepped upon, and wherein said light means comprises a plurality of light bulbs corresponding to the number of jumping boards which are respectively illuminated as a particular jumping board is stepped upon, a musical score formed on the upper surface of said base member and said plurality of light bulbs mounted on said musical score with each light bulb adjacent a respective jump board such that when it is illuminated it indicates on the musical score the note corresponding to its particular jumping board.

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