Feb. 21, 1956 J. F. BANGS ET AL 2,735,328

MUSIC COMB MOUNTING MEANS

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FIG. 1.

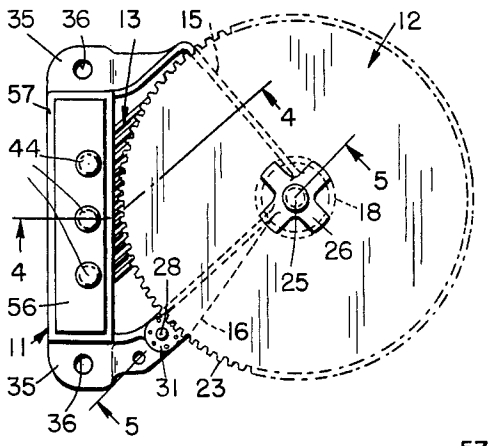


FIG. 2.

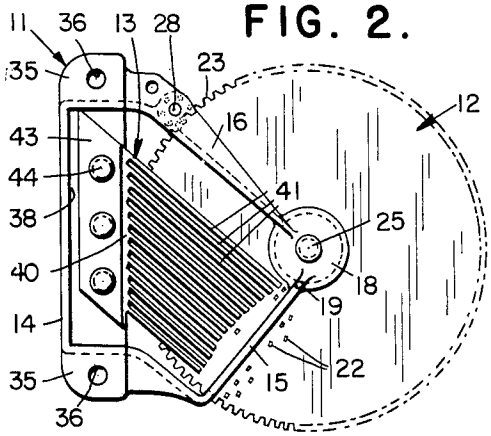


FIG. 3.

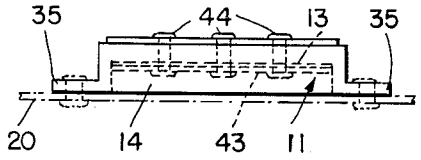


FIG. 6.

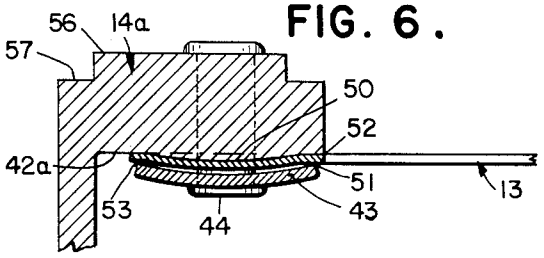


FIG. 4.

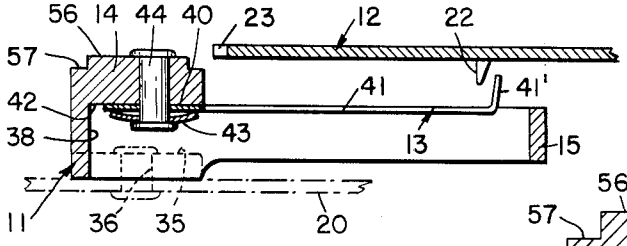


FIG. 7.

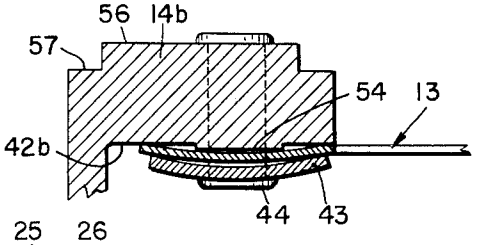
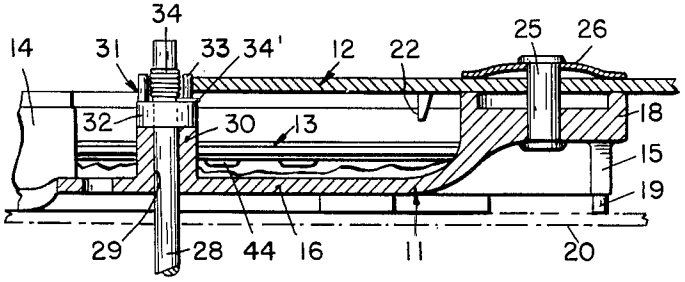


FIG. 5.



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FIG. 8.

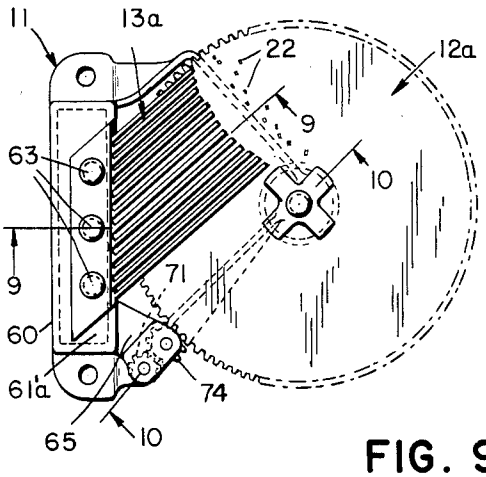


FIG. 11.

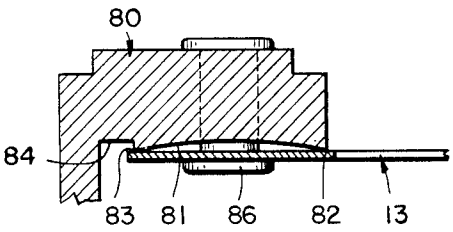


FIG. 9.

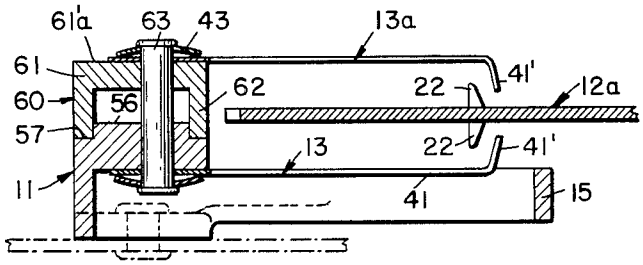


FIG. 10.

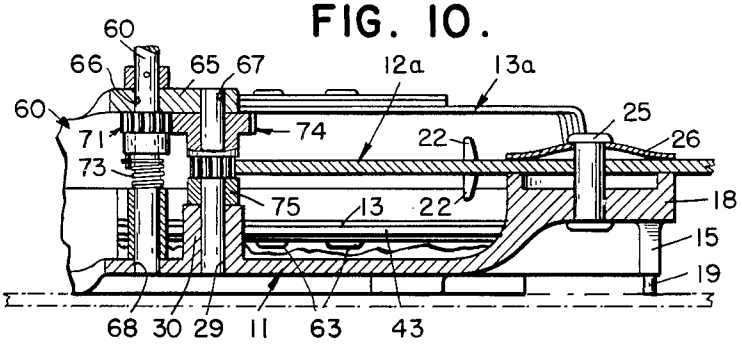


FIG. 12.

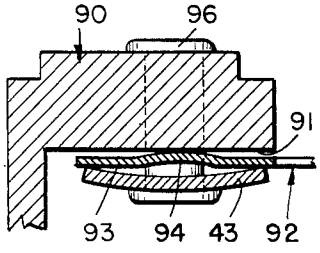
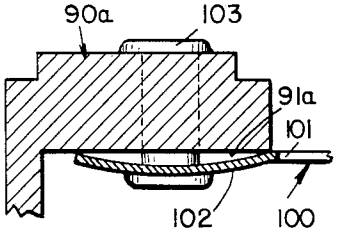


FIG. 13.



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MUSIC COMB MOUNTING MEANS

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Application October 2, 1950, Serial No. 187,846

8 Claims. (Cl. 84—94)

This invention relates to music boxes of the type embodying a musical comb having vibrators and a rotatably mounted disk with projections thereon for plucking the vibrators as the disk is rotated, the pluckers being arranged in a definite pattern so as to produce music by their sequential operation of the vibrators of the comb.

An object of the invention is to provide an improved music box construction embodying a one-piece music comb, a rotatable disk with plucking projections for engaging the vibrators of the comb, and a mounting base for holding both the comb and the disk in proper operable relation, which is suitable for mounting in a variety of articles.

Another object of the invention is to provide an improved and novel mounting structure for holding a musical comb and disk in substantially parallel relationship in vertically spaced planes and for holding the comb at a desired angle to a given radius of the disk.

A further object is to provide a mounting which is particularly suitable for securing a comb made from a single piece of material, such as metal as by a stamping or punching operation or by molding.

Still another object is to provide a mounting base structure for rotatably supporting a plucking disk which is designed for supporting either one or two musical combs in proper position with relation to the disk. In this connection it is an object to provide a special adapter for use on a standard base member which enables the mounting of a second comb on the base member.

A further object is to provide a novel means for clamping or securing the musical comb to the base in order to obtain both a loud and high-quality tone from the comb.

Another object of the invention is to provide a mounting base for a rotatable plucking disk and a musical comb in which the base is adapted to support the comb substantially parallel to the disk and beneath the same with means for securing the base to a sounding board positioned beyond the musical comb.

A further object is to provide novel means for clamping or securing a plucking disk to a mounting base for securing maximum stability and minimum friction.

Still another object is to provide a comb and disk mounting construction of the type indicated which is designed for the mounting of a crank and either one of two forms of gearing for the purpose of driving the plucking disk at a desired speed relative to the crank, dependent upon whether one or two combs are mounted on the mounting structure.

Another object is to provide a mounting structure for a musical comb and plucking disk which is relatively inexpensive to manufacture in that it lends itself to mass production methods.

These and other objects will be apparent from the drawings and the following description. Referring to the drawings,

Fig. 1 is a plan view of a device embodying the invention.

Fig. 2 is an inverted plan view of the device of Fig. 1.

Fig. 3 is an end elevational view of the device of Fig. 1.

Fig. 4 is an enlarged sectional view on the planes of line 4—4 of Fig. 1.

Fig. 5 is an enlarged sectional view on line 5—5 of Fig. 1.

Fig. 6 is a greatly enlarged fragmentary cross-sectional view of a modified form of base.

Fig. 7 is a view similar to Fig. 6, but showing another form of construction.

Fig. 8 is a plan view of the device of Fig. 1 to which has been added a second musical comb, together with a means for mounting the comb and showing a modified form of gearing and a modified form of plucking disk.

Fig. 9 is an enlarged sectional view on the line 9—9 of Fig. 8.

Fig. 10 is an enlarged sectional view on line 10—10 of Fig. 8.

Fig. 11 is a sectional view of a comb mounting means embodying a modified form of the invention.

Fig. 12 is a view similar to Fig. 11 but showing another type of mounting.

Fig. 13 is another view similar to Fig. 11, but showing another way of mounting a comb.

More particularly describing the invention, reference numeral 11 generally indicates a mounting base, 12 a plucking disk or wheel and 13 a musical comb.

The mounting base is adapted to support the comb and the plucking disk in substantially parallel relation with the comb disposed at an angle such that the ends of the vibrators of the comb are arranged substantially along a radius of the plucking disk.

The mounting base includes a base body 14 and a pair of arms indicated by 15 and 16. The arms converge and terminate in a substantially circular disk supporting boss 18. A depending post 19 is provided on arm 15 to support the structure on a sounding board 20 shown in broken lines in certain of the figures.

The plucking disk 12, which may be of any suitable material, is provided with downwardly projecting plucking elements 22 and with peripheral gear teeth 23. The disk is supported upon the boss 18 of the base and rotatably secured thereto by means of a rivet 25 and a spring, disk-mounting spider 26 which is slightly compressed when the parts are assembled. This construction provides a stable mounting for the disk 12 and yet permits rotation thereof.

For the purpose of driving the disk a shaft 28 is provided mounted in a suitable bore 29 in the arm 16 of the mounting base, the arm having a boss 30 at this point. The shaft may have a crank handle (not shown) at its outer end or be otherwise driven. On the inner end of the shaft is gear wheel 31 which is rotatable on the shaft. The gear wheel includes a base portion 32 from which extend a plurality of circumferentially spaced peg-like projections 33 which act as gear teeth and mesh with the teeth 23 on the disk for the purpose of driving the same. A spring 34 about the shaft having an end 34' hooked around one of the projections 33 of the gear wheel serves as a driving connection between the shaft and the wheel. When the shaft is rotated in the desired direction the gear wheel is driven, but if rotated in a reverse direction the spring loosens, permitting the shaft to rotate.

The mounting base 11 is provided at each end with relatively flat extensions 35 which are apertured at 36 for the purpose of receiving rivets to secure the mounting base and its carried elements to a sounding board member 20.

The mounting base body 14, inwardly of the extensions 35, is recessed at 38 on its under surface to pro-

vide a space for the mounting of the music comb 13. The comb itself is shown as being formed from a single piece of material as metal, and includes a base portion 40 and vibrators 41. The base portion is adapted to be mounted against the comb mounting surface 42 of the recessed portion 38 on the under side of the mounting base body 14. In Fig. 4 we show the comb secured by a clamp 43 which is arcuate in cross-section, and placed against the comb with the concave side adjacent the comb. The clamp and comb base are suitably apertured to receive rivets 44 for securing the parts together.

While good results are obtained with the recessed comb mounting surface 42 formed flat, in Figs. 6 and 7 we show another type of mounting for the comb. Referring to Fig. 6, the comb mounting surface, here indicated by numeral 42*a*, is shown as being generally flat, but provided with a slight convexity 50 which extends longitudinally of the base. With this construction it will be apparent that when the comb is secured in position by the clamp 43 and rivets 44, the comb base will be stressed. We have found that this tends to produce a louder and clearer tone than where the comb is secured flat against a flat surface.

We also prefer to position the clamp 43 in such a manner that the inner edge 51 thereof is spaced inwardly slightly away from the edge 52 of the mounting base. We have found that excellent results are obtained if the line of contact of the edge 51 of the clamp with the comb lies in a plane disposed at an angle of about 60° to the plane of the comb and passing through the edge formed by surfaces 42*a* and 52 of the mounting base 14*a*. The opposite edge 53 of the clamp 43 may be positioned slightly inwardly of the margin of the comb base and relatively greater latitude is permissible as to the location of this edge of the clamp.

In Fig. 7 we show a modification wherein the comb mounting surface, here indicated by 42*b*, is provided with a central plateau 54, which serves to warp or stress the base of the comb, as shown in the drawing, when the comb is secured to the mounting base 14*b* by the rivets 44 and clamp 43.

The height of the convexity 50 or plateau 54 above the remainder of the surfaces 42*a* and 42*b* respectively, need not be great, and can conveniently be of the order of .002 of an inch.

With any of the above-described constructions it will be apparent that the marginal side edges of the clamp will firmly engage and slightly bite into the material of the comb with the result that the comb is firmly clamped in place on the base.

Also, with the above-described construction, the comb 13 is tightly held substantially parallel to the plucking disk 12. The ends 41' of the vibrators 41 of the comb are turned or bent to project toward the disk into the paths of the plucking projections 22 on the disk. It will be apparent that the mounting base provides ample room for vibration of the vibrators of the comb. Also, with the construction outlined, the comb and the plucking projections of the disk are located between the sounding board and the outer surface of the disk, thereby affording protection to these parts.

Referring now to Figs. 8–10, it is one of the features of the invention that the mounting base is designed for the purpose of mounting a second music comb and to accomplish this the upper surface of the body 14 of the mounting base is provided with a central plateau 56 surrounded by a ledge 57 for the purpose of accommodating an adapter or riser, generally indicated by numeral 60. The adapter 60 consists of a body 61 formed with a depending marginal wall 62 to fit the ledge 57 on the mounting base. The member 61 provides an upper surface 61' to accommodate a second music comb, indicated by 13*a*, which is clamped thereto by means of a clamp 43. In this case rivets 63 extend through both combs and clamps

and through the mounting base and the adapter, securing all the parts together. With this construction it will be apparent that the second comb is mounted above the plucking disk. The disk 12*a*, of course, is provided with plucking projections on both sides in order to actuate the two combs.

In order to change the gear ratio or drive for the plucking disk when two combs are utilized, the adapter 60 is provided with an extension 65 which is formed to provide bores 66 and 67. When the parts are assembled the bore 67 is in alignment with bore 29 in the mounting base and bore 66 is in alignment with a bore 68 in the mounting base. A shaft 69 which may carry a crank at its outer end (not shown) is provided and journalled in the bores 66 and 68. A pinion 71 is rotatably mounted on this shaft, being associated with a drive spring 73 of the type previously described. The pinion meshes with a gear 74 having a section which meshes with the teeth on the periphery of the plucking disk. A spacer sleeve 75 is provided between the boss 30 of the mounting base and the gear wheel 74.

It should be apparent from the above that a unique construction has been provided which is adaptable for the mounting of either one or two music combs and a rotatable plucking disk therefor. It will also be apparent that the construction is compact and readily lends itself to incorporation into an infinite variety of articles.

In Figs. 11, 12 and 13 we show alternate means for mounting the comb. In these figures numeral 80 generally indicates a comb mounting base which may be generally similar to the mounting base 11 previously described. This base is provided in one instance (Fig. 11) with a recessed under surface 81, the lateral margins 82 and 83 of which extend below or beyond the surface 84 of the mounting base. With this construction a music comb 13 may be secured against the lateral, relatively sharp-edged portions of the mounting base bordering the recess 81 by means of rivets 86. The rivets are mounted in such a manner that the base portion of the comb is deflected or bent inwardly slightly so that it is held in tension against the two regions 82 and 83.

Referring to Fig. 12, we show a form of mounting wherein the base 90 is provided with a flat under surface 91 against which the comb is mounted. In this instance the comb, indicated by 92, has a base portion 93 provided with a longitudinally extending laterally arcuate section 94, the convex side of which is positioned against the surface 91. The comb is secured in place by means of the previously described clamp 43 and rivets 96. It will be apparent that this construction also places the base of the comb in tension.

Referring now to Fig. 13, the base 90*a* has a comb mounting surface 91*a* accommodating a comb 100 constructed in a manner such that it serves as its own clamp. The comb includes vibrators 101 and a solid base portion 102. The base portion is formed to be laterally arcuate and, in mounting, the concave side of the base faces the surface 91*a*. The comb is secured by means of rivets 103 in such a manner that the base of the comb is slightly flattened and thereby held tightly in engagement with the surface 91*a* at each lateral margin of the comb base.

Each of the described methods of mounting the music comb results in a music box capable of giving loud, and clear tones.

Although the invention has been particularly shown and described, it is contemplated that various changes and modifications can be made without departing from the scope of the invention as set forth in the claims.

We claim:

1. In a music producing device, a mounting base adapted to be secured to a sounding board, comprising a body formed to provide an elongated music comb mounting section providing one surface against which a music comb can be mounted and a second surface for abutting engagement with the sounding board, and

extension means spaced from the plane of said second surface projecting laterally of said comb mounting section providing a bearing support for rotatably mounting a plucking disk said extension means comprising a pair of converging arms extending from the ends of said comb mounting section and terminating in an apertured boss providing a bearing surface against which to secure a plucking disk.

2. In a music-producing device, a mounting base adapted to be secured to a sounding board, comprising an elongated music comb mounting section terminating at its ends in a pair of apertured sections having coplanar, sounding board engaging surfaces and adapted to receive fastening means to secure the same to a sounding board, said mounting section having an under surface between said apertured sections recessed relative to the sounding board engaging surfaces of said sections against which a music comb can be secured, and extension means projecting laterally of said comb mounting section providing a support for rotatably mounting a plucking disk in a plane substantially parallel to and vertically spaced from said recessed surface.

3. A mounting base as defined in claim 2 in which said extension means comprises a pair of converging arms extending from the ends of said comb mounting section and terminating in an apertured boss providing a bearing surface against which to secure a plucking disk.

4. In a music-producing device, a mounting base presenting a sounding-board-mounting surface adapted to be secured against a sounding board, said base presenting a comb-mounting surface spaced vertically from but substantially parallel to said sounding-board-mounting surface, a music comb mounted against said comb-mounting surface. said comb having elongated vibrators with end portions projecting away from the plane of said sounding-board-mounting surface, said base having an extension projecting laterally of the comb-mounting surface for supporting a plucking disk in a plane vertically spaced beyond the plane of the comb-mounting surface, and a plucking disk rotatably mounted on said extension, said disk having laterally extending projections for actuating the comb vibrators, said comb being positioned between the plucking disk and the plane of the sounding-board-mounting surface.

5. In a music-producing device, a music comb mounting base adapted to be secured to a sounding board, comprising a body formed to provide an elongated music comb mounting section providing one surface against which a music comb can be mounted and a second surface vertically spaced therefrom for abutting engagement with the sounding board, a pair of arms extending laterally of said comb mounting section and converging in an apertured boss formed at the ends of the arms, said boss providing a bearing surface for supporting a plucking disk, and a sound post extending below said boss for engagement with said sounding board.

6. In a music-producing device, a mounting base adapted to be secured to a sounding board, said base comprising a body formed to provide a music comb mounting section providing one surface against which a music comb can be mounted and a second surface for abutting engagement with the sounding board, and extension means spaced from the plane of said second surface projecting laterally of said comb mounting section providing a bearing support for rotatably mounting a plucking disk, a music comb secured to said one surface, an adapter member on said mounting base providing a surface for securing a second music comb in superposed parallel relation to said first-mentioned comb, a second comb secured to said last-mentioned surface, and means securing said combs and said adapter and mounting base together.

7. In a music-producing device, a mounting base adapted to be secured to a sounding board, said base comprising a body formed to provide a music comb mounting section providing one surface against which a music comb can be mounted and a second surface for abutting engagement with the sounding board, and extension means spaced from the plane of said second surface projecting laterally of said comb mounting section providing a bearing support for rotatably mounting a plucking disk, a music comb secured to said one surface, an adapter member on said mounting base providing a surface for securing a second music comb in superimposed parallel relation to said first-mentioned comb, a second comb secured to said last-mentioned surface, means securing said combs and said adapter and mounting base together, and a plucking disk rotatably mounted on said extension means between said music combs, said combs each having elongated vibrators terminating in portions extending toward each other, and said disk having laterally extending plucking projections for engagement with the ends of said vibrators.

8. A device as defined in claim 7 in which a driveshaft is mounted in said base and a driving connection exists between said shaft and said plucking disk.

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