

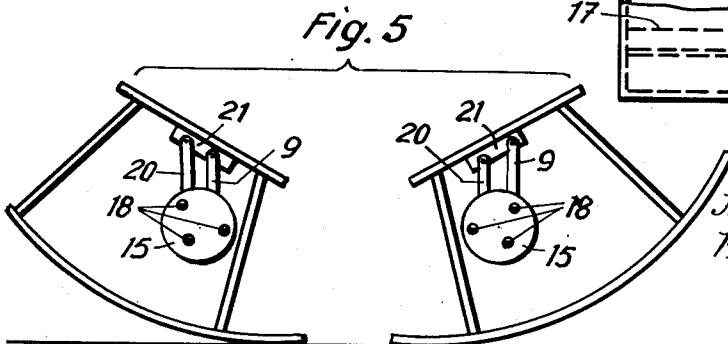
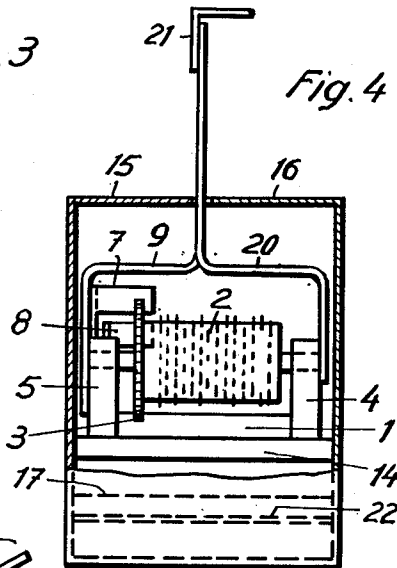
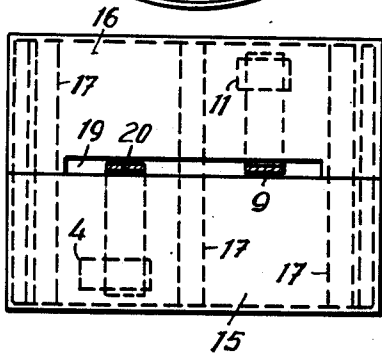
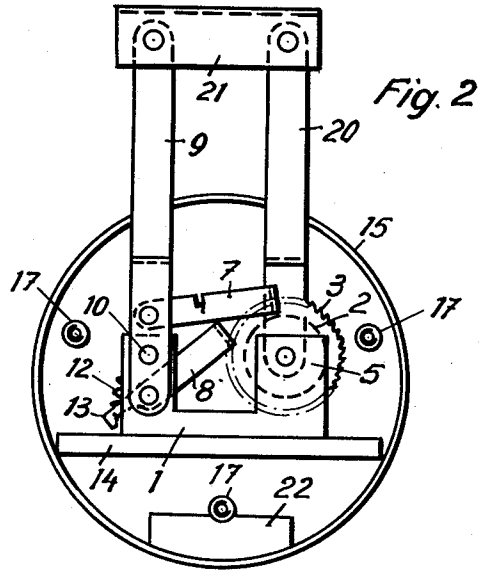
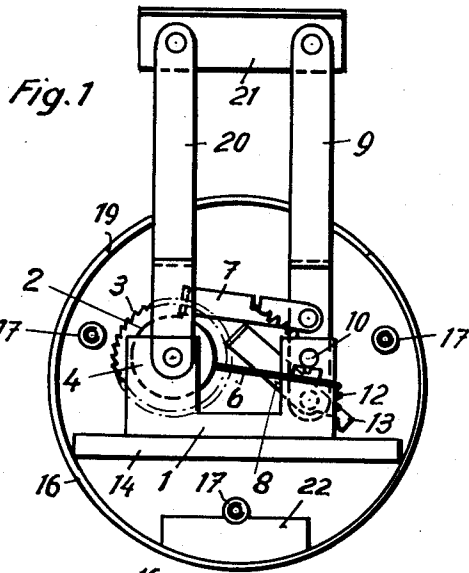
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MUSICAL BOX

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MUSICAL BOX

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A musical box is known comprising a comb and a needle roller, which serves for operating the reeds of the comb, as well as means for rotating the needle roller in one direction of rotation, the reciprocating movement of an operating member being converted into two rotating impulses. The operating member is in the form of a press key or may be connected with a press key by means of rods or the like. Consequently, the musical box can be placed on an article which is intended to carry out rocking movements only when a press key and the connecting means can be mounted between the latter and the operating member.

The invention relates to a musical box comprising a comb and a needle roller which serves for operating the reeds of the comb, as well as an operating member, which performs a reciprocating movement, for rotating the needle roller in one direction. According to the invention, this musical box differs from the known construction in that it comprises a suspending device for arranging it on the article, which serves for carrying out rocking movements, as well as means for maintaining the vertical position during the rocking movements, so that the suspending device itself acts as the driving member for rotating the needle roller and the musical box is operated by the action of its own weight.

An example of embodiment of the subject matter of the invention is illustrated by the accompanying drawings, of which

Fig. 1 is an elevation with one side of the casing removed;

Fig. 2 is an elevation with the other side of the casing removed;

Fig. 3 is a plan;

Fig. 4 is a cross-section through the casing; and

Fig. 5 is a front elevation, on a smaller scale, of the suspended musical box in two different positions.

The musical box comprises a needle roller or pin cylinder 2 which is rotatably arranged on a plate 1 and with which a toothed wheel 3 is connected. Two supports 4 and 5, which are connected with the plate, serve for mounting the needle roller 2. On the rotation of the pin cylinder 2, the reeds of a comb 6, which is screwed on to a ledge-like elevation on the plate 1, are raised by the pins that project above the periphery of the pin cylinder 2.

For rotating the toothed wheel 3 there are provided two pawls 7 and 8 which are pivoted at one end on an arm 9. The arm 9 itself is pivotally connected on a pin 10 arranged between the posi-

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tions in which the pawls are fixed, with a support 11 arranged on the plate 1, so that, when the arm 9 is moved to and fro about its rocking axle, one pawl moves the toothed wheel 3 forward whilst the second pawl carries out a rearward movement and slides on the toothed wheel without affecting it and, when the rearward movement is interrupted comes into engagement with the toothed wheel and moves it forward, when the direction of movement of the arm 9 is reversed. Accordingly, a to-and-fro movement of the arm 9 effects two consecutive rotary movements of the toothed wheel 3 in the same direction. Fixed to the pawl 7 is one end of a helical spring 12 which is placed over the pivoting axle 10 and is connected at its other end with a hook-shaped extension 13 of the pawl 8. This spring 12 accordingly has two parts which are at an obtuse angle to each other and which keep the two pawls constantly in contact with the toothed wheel 3.

The plate 1 is, together with the parts mounted thereon, put on a plate-shaped support 14 and is, with the latter, accommodated in a cylindrical casing formed of two parts 15 and 16. For connecting the two parts 15 and 16 of the casing together, spacer pieces 17 and cap screws 18, which are screwed into internal threads of bores in the latter, are provided. In the part 16 of the casing, there is provided an edge depression 19 which, when the part 15 of the casing is put on, forms a slot and serves for the passage therethrough of the extended arm 9 as well as of a further carrying arm 20.

The two arms 9 and 20 are each bent twice at right angles (see Fig. 4) and serve as suspending members for the musical box. The end of the carrying arm 20, which is located inside the casing 15, 16, is pivoted to the support 4 with the shaft of the needle roller as a pivoting axle. The two ends of the arms 19 and 20, which are located outside the casing, are pivoted to an angle piece 21 which is intended as a fixing member for suspending the musical box on an article with which rocking movements can be carried out, for example on rocking chairs.

The operation of the musical box described is as follows:

The musical box hangs freely like a pendulum and is kept permanently in the vertical position by a weight member 22 made of a heavy metal, for example lead, while the casing, however, together with the parts accommodated therein, can carry out a rotary movement about its own axis, which movement is limited by the length of the

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edge depression. The musical box is suspended by the two arms 9 and 20 at two positions which are spaced apart and which lie on the two sides of the axis of the casing. If the article which is carrying out rocking movements is brought into an inclined position, as indicated on the left-hand part of Fig. 5, the arm 20 pulls the part with the pin cylinder 2 upwards and the arm 9 moves the support 11 downwards, the pawl 7, at the same time, rotating the toothed wheel 3 owing to the rocking movement about the pivot 16. When the article which is carrying out rocking movements then passes to the inclined position shown on the right in Fig. 5, the pawl 8 becomes operative to continue to rotate the toothed wheel.

Consequently, when the rocking movements are being performed, the musical box is operated under the action of its own weight by reason of the fact that the latter is arranged for maintaining the vertical position during the rocking movements and the suspending device, which consists of the two arms 9 and 20, compels the plate 1 and the parts fitted thereon to rock since one arm performs an upward movement and the other arm performs a downward movement. In this way, a rocking movement of the arm 9 together with the two pawls 7 and 8 in relation to the plate sets in.

What we claim is:

1. In a rocking structure, a musical device comprising a base member, a rotating cylinder with pins and registering reeds of different length capable of producing musical sounds, said reeds being adapted to be engaged by said pins to be operated thereby, a driving member operatively connected to said cylinder, said driving member and said cylinder being rotatably mounted on said base member, means pivotally connected at its top to said rocking structure to freely swing like a pendulum in the rocking plane of said rocking structure, said means pivotally suspending at its lower end said base member to freely swing like a pendulum in the rocking plane of said rocking structure, while said base member tends to retain a fixed angular position with respect to the perpendicular, elements on said suspending means engaging said driving member and being adapted to rotate the same together with said cylinder in one direction due to angular displacement of said suspending means with respect to said driving member, when said rocking structure is rocked, whereby musical sounds are produced as a result of the operation of said reeds by said pins on said cylinder.

2. In a rocking structure according to claim 1, wherein a weight is secured to said base member below its suspension axis to assure its retention in the perpendicular position.

3. In a rocking structure according to claim 1, wherein a casing is attached to said base member, said casing enclosing said musical device.

4. In a rocking structure, a musical device comprising a base member, a rotating cylinder with pins and registering reeds of different length capable of producing musical sounds, said reeds being adapted to be engaged by said pins to be operated thereby, a toothed wheel operatively connected to said cylinder, said toothed wheel and said cylinder being rotatably mounted

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on said base member, lever means suspended at their top from said rocking structure to freely swing like a pendulum in the rocking plane of said structure, pivot means at the lower part of said lever means to freely suspend said base member from said lever means so that said base member tends to maintain a fixed position with respect to the perpendicular during swinging movements of said lever means, pawl means on said lever means biased to engage said toothed wheel and being adapted to rotate the same and said cylinder, due to angular displacement of said lever means with respect to said toothed wheel, when said rocking structure is rocked, whereby musical sounds are produced as a result of the operation of said reeds by said pins on said rotating cylinder.

5. In a rocking structure according to claim 4, wherein said pivot means is provided somewhat above the lower end of said lever means, said pawl means comprising two independent pawls biased to engage said toothed wheel, one of said pawls being hinged to said lever means at a place somewhat below said pivot means, the other of said pawls being hinged to said lever means at a place somewhat above said pivot means, whereby said one pawl imparts a rotating movement to said toothed wheel and said cylinder when said rocking structure is rocking in the one direction, and said other pawl imparts a rotating movement to said toothed wheel and said cylinder when said rocking structure is rocking in the other direction.

6. In a rocking structure according to claim 4, said lever means comprising two levers spaced from one another in the rocking plane of said rocking structure, pivot means to separately suspend said levers at their top from said rocking structure, two pivot means to separately suspend said base member from said two levers, said latter pivot means of said one lever being provided somewhat above the lower end of said lever, said pawl means comprising two independent pawls biased to engage said toothed wheel, one of said pawls being hinged to said one lever at a place somewhat below said latter pivot means, the other of said pawls being hinged to said lever at a place somewhat above said latter pivot means, whereby said one pawl imparts a rotating movement to said toothed wheel and said cylinder, when said rocking structure is rocking in the one direction, and said other pawl imparts a rotating movement to said toothed wheel and said cylinder when said rocking structure is rocking in the other direction.

7. In a rocking structure according to claim 6, wherein a casing surrounding said musical device is mounted on said base member, said casing being formed with cutouts for the free passage of said levers at every operative position.

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