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STOPPING MECHANISM FOR A MUSIC-BOX

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FIG. 1

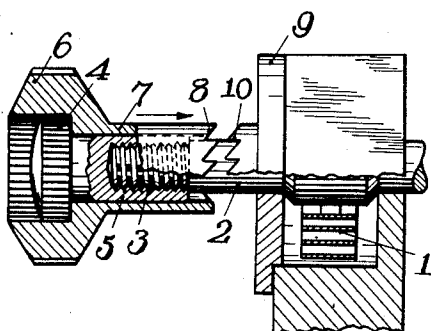
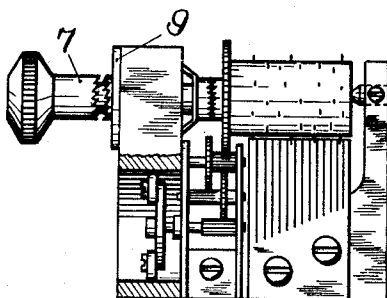


FIG. 2



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## STOPPING MECHANISM FOR A MUSIC-BOX

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2 Claims. (Cl. 185—39)

This invention relates to improvements in music-boxes, and particularly to a stopping mechanism therefor.

Heretofore, there is not a simple and accurate means for stopping a music-box at will driven by a spring motor before the motor unwinds.

One object of this invention is to provide a music-box which may be stopped at will by a simple and accurate means so as to interrupt a musical performance of the box.

Another object of this invention is to provide a music-box of an extremely small size adapted to be operated by a weak spring motor which may be stopped at will.

Still another object of this invention is to provide a music-box which may be stopped by a simple operation.

I attain these objects by mechanism illustrated in the accompanying drawing, in which:

Fig. 1 is a sectional side view with a portion broken off of the stopping mechanism of a preferred embodiment of this invention,

Fig. 2 is a plan view of a music-box provided with the stopping mechanism.

Now referring to the drawings, a music-box is shown comprising a playable drum secured on one end of a shaft 2 driven by a coil spring 1. The other end of the shaft 2 is screwed into a cylindrical recess 3 provided in the plug 5. A flange 4 is formed on the other end of the plug 5. The plug 5 is covered by a knob 6. The periphery of the flange 4 of the plug 5 is inserted into a cylindrical recess formed at the outer end of the knob 6 so as to prevent the knob 6 from coming too far out. The outer cylindrical surface of the plug 5 is inserted into a cylindrical sleeve 7 of the knob 6. Furthermore, a plurality of axial splines are formed both on the periphery of the flange 4 and on the inner periphery of the cylindrical recess of the knob 6 so as to engage the former with the latter in such a manner that the latter will slide axially on the former but will not rotate relative to each other. The cylindrical sleeve 7 has a saw-toothed inner end 8 the teeth of which are formed to provide a one-way ratchet means with a saw-toothed outer end 10 of another sleeve extending from cover 9 of a casing for the coil spring 1. The saw-teeth of the knob extension 7 have their leading edges parallel to the axis of the shaft and the trailing edges at an angle thereto. The

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saw-teeth of the cover-extension 10 are cut to the opposite hand matable with the teeth of the knob extension. The length of the splines of the knob is at least equal to the depth of the saw teeth. This forms a one-way ratchet, which does not obstruct winding the spring 1 by rotating the knob 6. Preferably, the knob 6 is provided with a knurled outer periphery.

In operation, when the knob 6 is rotated in the clockwise direction looking from the left side of Fig. 1, the coil spring 1 is wound up, the saw-toothed end 8 of the cylindrical sleeve 7 is thrust outward so as to disengage the end 8 from the saw-toothed outer end 10 by virtue of the shape of the teeth. When the knob 6 is kept free, the spring motor 1 drives the playable drum and also the plug 5. By virtue of the engagement of the splines formed on the outer periphery of the flange 4 with the splines formed on the inner periphery of the recess of the knob 6, the latter is forced to revolve when the one-way ratchet means is disengaged, as shown in Fig. 1. When the knob 6 is pushed in, the inner end 8 is engaged with the outer end 10 of the sleeve extending from fixed cover 9. In such an instance, as the teeth of these saw-toothed ends operate only in one direction, the knob 6 is forced to stop. As the knob 6 is engaged with the plug 5 by means of the splines, the plug 5 is forced to stop, which, in turn, interrupts the unwinding motion of the spring motor 1.

While there is herein shown and described an example of the present invention, I do not wish to be limited to the example herein particularly shown and specifically described. The invention shall include all equivalents thereof which will occur to those skilled in the art.

I claim:

1. In a clock spring actuated manually wound motor, a stopping mechanism comprising a drive shaft, said spring mounted with one end attached to said shaft, a plug fixed axially on the winding end of said shaft, a knob slidably mounted over said plug, means preventing rotation of said knob relative to said plug, a knob extension provided with a circular saw-toothed rim, a fixed cover mounted over said clock-spring and attached to one end thereof, a cover extension over said shaft provided with a circular saw-toothed rim, said rims of said knob extension and of said cover extension each provided with matable saw teeth, forming a one way ratchet means, said teeth of said knob extension each having a leading edge parallel to the axis of said shaft and a trailing edge at an angle thereto, said teeth of said cover extension cut to the opposite hand matable with said teeth of said knob extension.

2. A stopping mechanism as claimed in claim 1 wherein said plug has external splines on its winding end, said knob having internal splines mating with said splines of said plug, the length of said splines of said knob being at least equal to the depth of said teeth.

No references cited.