The subject of this invention is a new article of manufacture in so far as essentially it provides the novel and valuable combination of (a) a music works of the kind which when set into operation emits a tinkle-melody tune, such works commonly referred to as a Swiss type music box, (b) a main support therefor and on which the music works and the means for manually setting the same into operation are permanently carried, the salient characteristic of which support is that it is a component part of a piece of juvenile furniture or a component part of a seating piece of furniture, for example a rocking chair; and (c) an improved means for manually setting the music works into operation and which means is particularly adapted for easy use in setting the music box into operation when permanently carried as just stated.

A subsidiary feature of the invention is, therefore, the provision of a novel and valuable such operating means per se.

The scope of the invention, in its broader and first explained aspect, is not to be limited to any particular manner of permanently mounting the music box on any specific type of juvenile furniture, as the piece of such furniture used may be, for instance, a corner post or other part of a playpen or crib, the liftable tray or some other part of a high chair, or a hood-adjacent framing member or some other part of the body of a perambulator. For example, such permanent mounting may be effected by the aid of utilization of a cavity or recess provided in a member ordinarily componental of any piece of furniture of any of the kinds above indicated, all of which herein will be referred to and included in the designation "piece of juvenile furniture," or said permanent mounting may be carried out by suitably securing the music box in a can, box or container of any kind or shape and then suitably permanently attaching such container or the like to the selected member of the selected piece of juvenile furniture, as against an otherwise exposed plane surface of said member. But always the placement of the device of the invention then to be rebuilt, as it were, on said member, will be such as to present a manually graspable actuator for the music-works-operating means within convenient hand reach of the child.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a fragmentary perspective view, looking down on a position of a piece of juvenile furniture, and showing the new combination in one possible embodiment thereof, and one, for example, including one possible kind and shape of can, box or container.

Fig. 2 is a bottom plan view of Fig. 1.

Fig. 3 is an enlarged partial longitudinal sectional view taken on the line 3-3 of Fig. 1.

Fig. 4 is a bottom plan view of the sound emitting device, per se.

Fig. 5 is a top plan view of Fig. 4.

Fig. 6 is a side elevational view of Fig. 5.

Fig. 7 is a horizontal sectional view taken on the line 7-7 of Fig. 6.

Fig. 8 is an enlarged partial vertical sectional view taken on the line 8-8 of Fig. 7.

Fig. 8a is an elevation of the ratchet mechanism.

Fig. 9 is a fragmentary bottom plan view of the sound emitting device, per se, and constructed in accordance with a modification of the present invention.

Referring to the drawings more in detail, and first to Fig. 1 to 8, the furniture member 10 may, for instance, be assumed to be the outer end portion of the arm of an infant's high chair; or, if this Fig. 1 be viewed as though rotated through 90°, said member may be assumed to be, say, a corner post or other upstanding part of the framework of a playpen, crib or the like.

The can, box or container illustrated as included in the embodiment of the new combination herein shown, may be such a container as that which is as a whole marked 11. This container, as already stated, may be conveniently and inexpensively drawn and/or drawn and spun from a thin sheet metal; and as shown the same has a basal annular flange 12 and a main hollow body 14. As this container also is illustrated, it is circular in basal outline and has generally a substantially spherical formation at its said main hollow body. However, as will be understood, the can, box or container, if present, can be made to any outline and to any shape and of any suitable material and in any way. The flange 12 or equivalent is conveniently present, to permit permanent securing of the container, as screws 15a, see Fig. 2, passed through screw holes 16, to the selected furniture member. With the main body of the container circular in cross section, there is suitably secured therein, as by screws or the like 16, a disc or other rigid member 17, as one of wood, on which the music works, this as a whole designated 18, is secured as by the screws indicated at 18a and passing through suitable apertures in a cast base 19 incorporated in the music works.
Referring particularly to Figs. 7 and 8, the music work 18 further includes the usual reed comb 20 and the usual pinion 21. A larger gear 22 and an alongside smaller gear 23, are integral with a shaft 24 integral with said cylinder. A long length of the shaft 24 is telescoped into the sleeve portion of a long fixed shaft or bearing rod 25 having an end secured to a post portion 26 of the base casting 19 by a screw 27. A casing 28 is secured to the base 19 as by screws 29 and down through two apertured ears offset from the open bottom of said casing. The casing 28 has an inturned neck portion 30 for journaling therein the shaft 24 and beyond said neck portion said shaft 24 has a bevel pinion 31 suitably fixed thereon. Largely in the casing 28, there is a vertical section 32, collared near its upper end as at 33, and this shaft has fixed thereon a bevel pinion 34 for meshing with the pinion 31 which is disposed at one end of the shaft 24. The other end of the shaft 24 carries a ratchet member 25 which engages the ratchet gear 23.

The wind-up spring is shown at 35, this having one end 35a thereof hooked into an aperture in the side wall of the casing 28, and its other end 35b hooked in through an opening in and extending transversely of the shaft 32.

An air-brake is provided, to assist in slowing down the rate of unwinding of the spring 35 after the same has been wound up and released for unwinding; this air-brake being driven from the gear 23, by meshing of the latter with a gear 36 fixed on the same axis with a tiny pinion 31, which pinion is fixed on the same axis with a winding gear 38 meshing with a tiny worm (not shown) fixed on a small vertical shaft 39. This shaft carries a shaped strip 40 providing at its opposite end portions the two vanes of the air-brake. A stamping 41 is attached as by the screws indicated in Fig. 7 to the cast base 19; which stamping includes a lazy-U formation 41a for providing a journaling mounting for the shaft 39, and also various upset lugs or lips for providing journaling mountings for the shafts carrying respectively the elements 36 and 31–33.

The lowermost length 42 of the main vertical shaft 32 is square in cross-section, so as to be keyingly engaged with the already mentioned pulley, 43, beyond the disc or rigid member 17. Wound around and in the groove of said pulley is an elongate flexible element, as the already mentioned cord, 44, one end of which cord may be connected to the pulley as indicated at 45. In the side wall of the casing 11 is an aperture attended by a metal, rubber or plastic grommet 46, and through the opening thus provided the cord is extended. Fixed to an intermediate portion of the cord 45 there is a limit ball 47, this desirably secured to the cord at a point such that when the spring 35 is fully unwound the limit ball will be in engagement with the grommet 46, as shown in Fig. 2. The ball 47 is limited against sliding movement on the cord 44 by knots 48 formed in the cord on opposite sides of the ball 47.

The free end of the cord 44 is then alreadily projected through a passage 49, see Figs. 2 and 3, formed in the member and which leads to the edge of the member. The free end of the cord 44 is then provided with a free end form of a safety pull 44a in the form of a small member and which is in contact with the edge of the member 16 at the outer end of the passage 49 when the limit ball 47 is against the grommet 46, as shown in Fig. 2.

The operation of the device should by now be obvious. With the safety-pull 44a at the location just mentioned, the same may be manually felt for and grasped, and then the locking mechanism is released, this following release of the grasp on the safety-pull 44a, the cylinder 21 is rotated in the proper direction to play repeatedly the tune provided for by the placement of the pins on the cylinder 21, such rotation being very slow, due in part to the drag action of the air-brake and in part to the large speed reduction ratio of the gear drive from the shaft 32 over the bevelled gears 34 and 31, the shaft 24 the ratchet member 25, ratchet gear 23 to the cylinder's shaft 24; the pulley 45 now being rotated in the direction of the arrow 43b in Figs. 4 and 7, so that when the repeat-repertoire of the music works is ended the limit ball 41 is again against the grommet 46 and the cord 44 is again wound on the pulley 43.

Referring to the modification illustrated in Fig. 9, wherein the parts to which are applied reference numerals with primes added correspond, respectively, to the parts to which have been applied the same reference numerals without primes, there is provided on the main vertical shaft 32', in lieu of the pulley 43, a sprocket wheel 50. This wheel is engaged by a chain 51 of suitable length, passed through both of the two grommets 45' and at each of its opposite ends carrying a handle 52. Idler rotary discs 53, 53 may also be provided to hold the chain against accidental disconnection from the sprocket teeth. The arrangement is desirably such that when one of the handles 52 is in engagement with its grommet 45', the spring is operatively loaded, and when the other handle 52 is in engagement with its grommet 45', the spring is nearly unwound; and the chain 51 is desirably of such length that a manual pull on one of said handles (which handle desirably would be brightly colored or chequered-surface for more tactile ready identification) may be continued until the spring has been given a large degree of tension, and so that, at the conclusion of this tensioning, the other handle reaching is stopped by its grommet 45', thereby giving positive protection against any chance that the spring may be injured or made inoperative by too tight winding.

While we have illustrated and described the preferred embodiments of our invention, it is to be understood that we do not limit ourselves to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described our invention, what we claim as new, and desire to secure by United States Letters Patent, is:

1. In combination with an article of juvenile furniture or the like, a rigid member, a music box carried on one side of said rigid member, said music box including a spring driven music works, a shaft extending through an aperture of said rigid member, and a reduction gear between said shaft and said music works, a pulley mounted on the other side of said rigid member on the extension of said shaft, an operating
5 member wound on said pulley for operating the latter, a spring disposed around said shaft and one end of said spring connected thereto, said reduction gear including a ratchet gear and a ratchet member engaging said ratchet gear, said spring being wound upon rotation of said pulley without turning said ratchet gear, and said music works with said ratchet gear turning upon unwinding said spring.

2. In combination with an article of juvenile furniture or the like, a rigid member, a music box carried on one side of said rigid member, said music box including a spring driven music works, a shaft extending through an aperture of said rigid member and a reduction gear between said shaft and said music works, a pulley mounted on the other side of said rigid member on the extension of said shaft, a cord wound on said pulley for operating the latter, a spring disposed around said shaft and one end of said spring connected thereto, said reduction gear including a ratchet gear and a ratchet member engaging said ratchet gear, said spring being wound upon rotation of said pulley without turning said ratchet gear, and said music works turning with said ratchet gear upon unwinding said spring.

3. In combination with an article of juvenile furniture or the like, a rigid member, a music box carried on one side of said rigid member, said music box including a spring driven music works, a shaft extending through an aperture of said rigid member and a reduction gear between said shaft and said music works, a sprocket wheel keyed on the other side of said rigid member to the extension of said shaft and a chain having its intermediate portion engaged about said sprocket wheel for operating the latter, a spring disposed around said shaft and one end of said spring connected thereto, said reduction gear including a ratchet gear and a ratchet member engaging said ratchet gear, said spring being wound upon rotation of said sprocket wheel without turning said ratchet gear, and said music works turning with said ratchet gear upon unwinding said spring.

4. The combination, as set forth in claim 1, which includes a limit ball secured to said operating member, and abutment means for said limit ball in order to limit the wound and unwound position of said spring.

ERNST MUELLER.
HERBERT RAUSCHENBACH.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>403,556</td>
<td>Ritchie</td>
<td>May 21, 1889</td>
</tr>
<tr>
<td>1,157,166</td>
<td>Lukstat</td>
<td>Oct. 19, 1915</td>
</tr>
<tr>
<td>1,554,105</td>
<td>La Riviere</td>
<td>Sept. 15, 1925</td>
</tr>
<tr>
<td>1,779,849</td>
<td>Whalley</td>
<td>Oct. 21, 1939</td>
</tr>
</tbody>
</table>