

No. 621,845.

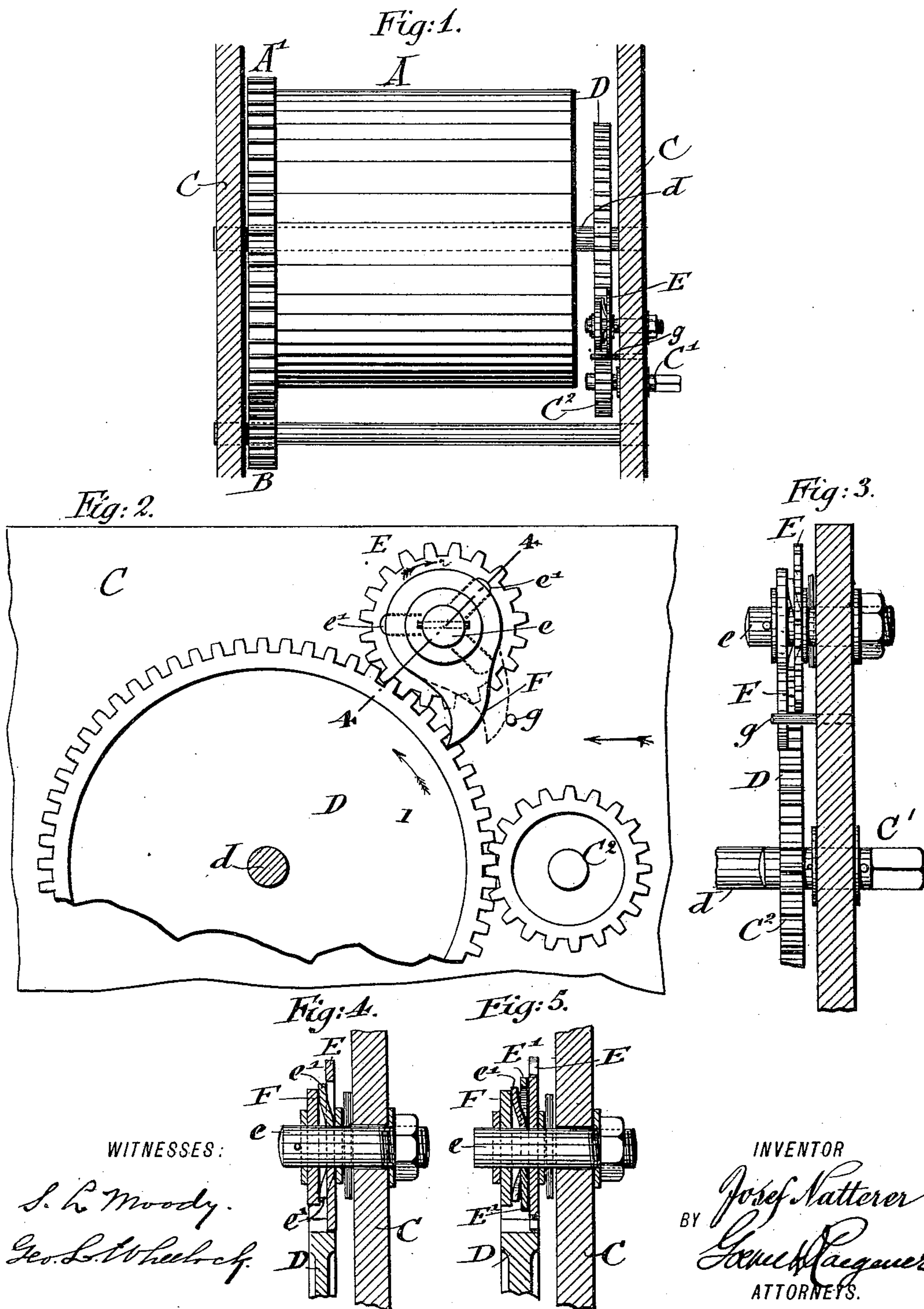
Patented Mar. 28, 1899.

J. NATTERER.

DETENT DEVICE FOR WINDING MECHANISM OF MUSIC BOXES.

(Application filed Dec. 3, 1898.)

(No Model.)





# UNITED STATES PATENT OFFICE.

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## DETENT DEVICE FOR WINDING MECHANISM OF MUSIC-BOXES.

SPECIFICATION forming part of Letters Patent No. 621,845, dated March 28, 1899.

Application filed December 3, 1898. Serial No. 698,153. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEF NATTERER, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Detent Devices for the Winding Mechanism of Music-Boxes, of which the following is a specification.

This invention relates to detent devices for the winding mechanism of music-boxes; and the object of the same is to avoid the disagreeable clicking and tapping noise caused by the riding of the detent-pawl over the teeth of the large gear-wheel of the winding-drum in the act of winding up the mechanism.

With this end in view the invention consists of a pinion which meshes with the winding gear-wheel of the spring-drum, a detent, and a frictional device between the pinion and detent, said frictional device having frictional contact with said detent and the latter having a certain limited movement, so that when the spring-drum is being wound up the detent will move out of the teeth of the said gear-wheel and will be held out of engagement so long as the winding-up movement is continued; but as soon as the same is discontinued the reaction of the spring-drum, through the medium of the intermeshing pinion, will cause the said detent to be thrown back into engagement with the teeth of the gear-wheel, thereby avoiding the clicking noise heretofore present in this form of mechanism.

In the accompanying drawings, Figure 1 is a detail plan view, partly in section, of so much of the winding-up mechanism of a music-box necessary for illustrating the present invention. Fig. 2 is an enlarged side elevation, parts broken away, of the winding-up mechanism of a music-box, showing my invention. Fig. 3 is a detail edge view in the direction of the arrow, Fig. 2. Fig. 4 is a section through Fig. 2 on the line 4 4, and Fig. 5 is a similar section of a modification.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A indicates the spring-drum of the music-box, which is provided with a large gear-wheel A', which by means of a suitable pinion B transmits mo-

tion to the music-box mechanism. The construction of these parts of the mechanism are too well known to require special illustration.

C is a part of the frame or casing of the music-box, in which is journaled a shaft C', having at one end a pinion C<sup>2</sup> and provided with a square head at its outer end for the application of the hand-crank. The pinion C<sup>2</sup> engages, as usual, with the gear-wheel D on the shaft d of the spring-drum.

Usually in winding-up mechanisms for music-boxes a detent is used for preventing the reaction of the spring-drum except to play the music when desired. In the present invention a detent is also used; but the same does not ride over and repeatedly strike the teeth and cause the disagreeable and well-known clicking noise, at the same time wearing out the detent. In the present invention a pinion E meshes with the teeth of the gear-wheel D, said pinion being mounted on a short stationary shaft e and being provided with spring-fingers e', which stand out from the plane of the said pinion, these spring-fingers being, as shown in Fig. 4, struck up from the metal of the pinion; but it is evident that they may be struck up from a separate disk E', as in Fig. 5. Arranged alongside of the pinion E and mounted loosely on the shaft e is a detent F, the toe of which is adapted to engage the teeth of the gear-wheel D. The pinion E is preferably made of sheet metal, so that the tongues or fingers e' can be struck up from the same and so that it will be so thin that the pawl F and the said pinion can both be arranged close together to engage the teeth of the gear-wheel D. Arranged at a suitable distance from the gear-wheel D, at a point adjacent to the toe of the detent F, so as to allow only sufficient play for the detent to enable it to clear the teeth of the gear-wheel, is a stop-pin g. The spring fingers or tongues e' are arranged in frictional contact with the hub of the detent F.

The action is as follows: When a crank is applied to the shaft C' and turned in the direction for winding up the spring-drum A, the pinion E, by reason of its constant intermeshing with the gear-wheel D and by reason of its frictional connection with the detent F, causes the latter to be disengaged from the



teeth of the gear-wheel D and to come in contact with the stop *g*. The frictional connection between the detent F and the pinion E is such that notwithstanding the contact of  
 5 said detent with said stop the pinion is free to turn with the gear-wheel D and the detent remains in the disengaged position so long as the winding-up motion is continued. When  
 10 the winding-up motion is discontinued, the gear-wheel D reacts in the direction of the arrow 1 and the intermeshing pinion E is turned in the direction of the arrow 2, so that the detent F is immediately thrown back into  
 15 engagement with the teeth of the gear-wheel D. It will be seen from this description and operation that as soon as the winding motion is commenced the detent F is disengaged and as soon as the said motion is discontinued the detent is immediately engaged, so that there-  
 20 by the constant clicking or striking of the detent against the teeth of the gear-wheel D is prevented. This clicking or tapping is very disagreeable, and at the same time it causes wear on the toe of the detent, which is apt to  
 25 render the same ineffective. With my winding mechanism the winding up is practically noiseless and is in no sense distressing.

It is evident that slight alterations are within the scope of skilled mechanics, and I do  
 30 not therefore limit myself to the structure as shown in the drawings.

Having thus described my invention, what I claim is—

1. The combination with a gear-wheel,  
 35 means for turning the same, and a pinion meshing with said gear-wheel, of a detent and a frictional device between the pinion and detent, said frictional device having frictional contact with said detent whereby the  
 40 detent may be caused to engage said gear-wheel, substantially as set forth.

2. The combination with a gear-wheel, means for rotating the same and a pinion intermeshing with said gear-wheel, of a detent  
 45 arranged opposite and to one side of one face of said pinion, and means whereby the de-

tent is adapted to be acted upon by said pinion when the winding-up motion is taking place, so as to release the detent from said gear-wheel and to be immediately reengaged  
 50 with said gear-wheel when the winding-up motion is discontinued; substantially as set forth.

3. The combination with a gear-wheel, means for turning the same, and a pinion  
 55 meshing with said gear-wheel, of a detent located opposite and to one side of one face of the gear-wheel and a frictional connection between the pinion and detent whereby the latter is caused to engage said gear-wheel,  
 60 substantially as set forth.

4. The combination with a gear-wheel, means for turning the same, and a pinion meshing with said gear-wheel of a detent pivoted on the same axis as said pinion and en-  
 65 gaging with said gear-wheel, and a frictional connection between the pinion and the detent, substantially as set forth.

5. The combination with a gear-wheel, means for turning the same and a pinion  
 70 meshing with the gear-wheel and provided with spring fingers or tongues, of a detent between which and said pinion, said spring fingers or tongues are arranged so that said  
 75 fingers are in frictional contact with said detent whereby the latter is caused to engage said gear-wheel, substantially as set forth.

6. The combination with a gear-wheel and means for turning the same, of a pinion meshing with said gear-wheel, a detent arranged  
 80 under the influence of said pinion and adapted to engage said gear-wheel, and a stop projecting back of said detent against which it is adapted to abut to allow a limited movement of the detent, substantially as set forth.  
 85

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOS. NATTERER.

Witnesses:

GEO. L. WHEELLOCK,  
 M. HENRY WURTZEL.