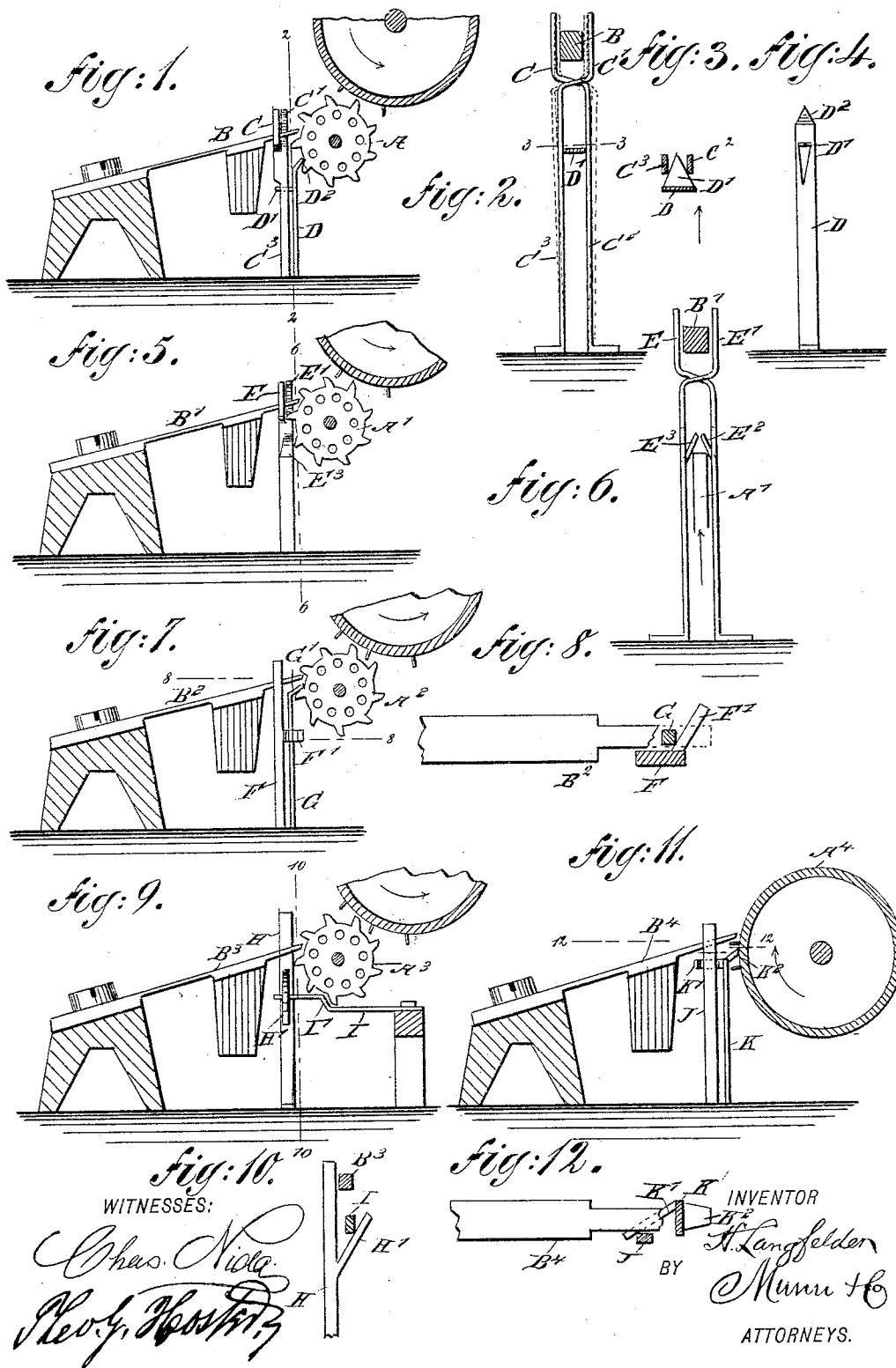


(No Model.)

H. LANGFELDER.
DAMPING DEVICE FOR MUSIC BOXES.

No. 560,415.

Patented May 19, 1896.



UNITED STATES PATENT OFFICE.

HENRY LANGFELDER, OF JERSEY CITY, NEW JERSEY.

DAMPING DEVICE FOR MUSIC-BOXES.

SPECIFICATION forming part of Letters Patent No. 560,415, dated May 19, 1896.

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To all whom it may concern:

Be it known that I, HENRY LANGFELDER, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Damping Device for Music-Boxes, of which the following is a full, clear, and exact description.

The invention relates to music-boxes having combs sounded by pin-cylinders, star-wheels, or other devices.

The object of the invention is to provide a new and improved damping device which is comparatively simple and durable in construction, cheap to manufacture, and arranged to positively damp the tongue of the comb previous to its being sounded by the pin of the cylinder and the tooth of the star-wheel.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied on a music-box having a star-wheel. Fig. 2 is an enlarged sectional face view of the improvement on the line 2 2 of Fig. 1. Fig. 3 is a sectional plan view of the same on the line 3 3 of Fig. 2. Fig. 4 is a face view of the rod for actuating the damping-bar. Fig. 5 is a side elevation of a modified form of the improvement as applied on a music-box having a star-wheel. Fig. 6 is an enlarged sectional face view of the same on the line 6 6 of Fig. 5. Fig. 7 is a side elevation of another modified form of the improvement as applied on a star-wheel music-box. Fig. 8 is an enlarged sectional plan view of the same on the line 8 8 of Fig. 7. Fig. 9 is a side elevation of still another modified form of the improvement as applied on a star-wheel music-box. Fig. 10 is a sectional plan view of the same on the line 10 10 of Fig. 9. Fig. 11 is a side elevation of another modified form of the improvement as applied on a music-box having a pin-cylinder, and Fig. 12 is an enlarged sectional plan view of the same on the line 12 12 of Fig. 11.

The damping device, as illustrated in Figs.

1, 2, 3, and 4, is applied on a music-box having a star-wheel A, adapted to sound a tongue B of the comb in the usual manner. The tongue B is damped previous to a tooth of the star-wheel A striking the free end of the tongue, and for this purpose the tongue is engaged at its sides near its free end by two damping-bars C and C', made of spring metal and formed like a pair of tongs, with their shanks C² and C³, however, secured to the music-box frame. The resiliency of the damping-bars C and C' holds the same normally out of engagement with the side edges of the tongue B; but when the shanks C² and C³ are pressed apart by a wedge-shaped lug or projection D' then the two bars move toward each other to engage opposite sides of the tongue B. (See dotted lines in Fig. 2.) This projection or lug D' is formed on a rod D, likewise made of spring metal and secured at its lower end to the music-box frame, the upper end of the rod being formed with a bend or incline D², adapted to be engaged by the teeth of the star-wheel A previous to a tooth engaging the tongue B.

Now it will be seen that when the star-wheel A is rotated in the usual manner to sound the tongue B then the star-wheel first moves with one of its teeth in contact with the end D² to press the rod D rearward to force the wedged-shaped projection D' between the shanks C² and C³ and move the damping-bars C and C' toward each other and in contact with the sides of the tongue B, as previously described. As soon as the tooth passes the end D² then the resiliency of the rod D returns the latter to its normal position, and consequently the wedge-shaped projection D' is withdrawn from the shanks C² and C³, and the latter spring back to their normal position by the resiliency of their metal to move the damping-bars C and C' out of contact with the tongue B. The latter is now struck by a tooth of the star-wheel A and sounded in the usual manner. Thus it will be seen that previous to the sounding of a tongue by the star-wheel A the tongue is damped by the damping-bars C and C', and the latter by their resilient force return to their normal position and out of contact with the tongue immediately previous to sounding the tongue by the star-wheel tooth. Thus the tongue can

sound up to the time the tongue is to be resounded by another tooth of the star-wheel; but then the tongue is damped just previous to resounding, as before described.

5 As shown in Figs. 5 and 6, the star-wheel A' for the tongue B' is adapted to pass between inclined projections E² and E³, formed on the inside of the shanks of the damping-bars E and E', held normally out of engagement with the sides of the tongue B', but
10 pressed into contact with the said tongue whenever a tooth passes between the projections E² and E³ to force the shanks apart and the bars E and E' toward each other.

15 As shown in Figs. 7 and 8, the star-wheel A² for the tongue B² is adapted to engage with its teeth the bent end G' of a spring-metal rod G, normally engaging an inclined arm F' of a damping-bar F, likewise made of spring
20 metal and adapted to engage one side of the tongue B² whenever the rod G is moved rearward away from the inclined projection F'. This rearward movement of the rod G takes place when a tooth of the star-wheel A² engages the bent end G', it being understood
25 that the resilient action of the bar F then causes the latter to move against the side of the tongue B² to damp the same.

As shown in Figs. 9 and 10, the damping-
30 bar H, of spring metal, is adapted to engage one side of the tongue B³, adapted to be sounded by the star-wheel A³, the latter previous to sounding the tongue pressing a bend I' in a spring-rod I, resting with its free end on an
35 inclined arm H' of the damping-bar H. Now by reference to Fig. 10 it will be seen that whenever the rod I is pressed it moves in contact with the arm H', so that the bar H is forced against one side of the tongue B³.

40 As shown in Figs. 11 and 12, a pin-cylinder A⁴ is employed to sound the tongue B⁴, adapted to be engaged at one side previous to its being sounded by a damping-bar J, normally held out of contact with the side of the tongue by
45 an inclined arm K', projecting from a spring-rod K, having the bent end K², adapted to be engaged by a pin of the cylinder A⁴ previous to the pin striking the tongue B⁴. Now it will be seen that when the pin moves in contact
50 with the bent end K² then the bar K is pushed outward and the arm K' is moved away from the bar J, so that the latter by its resiliency moves in contact with the side of the tongue B⁴ to damp the same. As soon as the tooth
55 has passed the bent end K² the rod K moves

back to its normal position by its resiliency and the arm K' presses against the bar J to move the latter out of contact with the tongue B⁴.

It will be seen that by the arrangement 60 described no complicated lever mechanism whatever is necessary to properly damp the tongues of the comb, it being understood that the device can be very cheaply manufactured and readily applied on any music-box without
65 great cost.

As hereinbefore described, the damper may be actuated from the cylinder-pins or from the teeth of a star-wheel or generically from any projections moving with the tongue-
70 sounding mechanism.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A damping device for music-boxes, comprising a resilient damper for the tongue, and a resilient bar engaging the damper and extending into the path of travel of projections moving with the tongue-sounding mechanism, substantially as described. 75 80

2. A damping device for music-boxes, comprising a pair of damping-bars arranged crosswise of each other, and means for operating the damping-bars, substantially as described. 85

3. A damping device for music-boxes, comprising a spring-metal damping-bar adapted to come in contact with the tongue of the comb, but normally out of contact therewith, and a spring-rod independent of the bar and adapted to be pressed by a projection on the
90 tongue-sounding mechanism, the rod being adapted to actuate the said damping-bar, and cause the latter to move into contact with the tongue of the comb the said bar and rod by their own resiliency moving back to their normal position previous to the said projection
95 striking and sounding the tongue, substantially as shown and described.

4. A damping device for music-boxes, comprising a pair of damping-bars held normally
100 out of contact with the sides of the tongue, and a rod adapted to be actuated from the tongue-sounding mechanism, and adapted to press the said damping-bars, to move the latter in contact with the side of the tongue, substantially as shown and described. 105

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Witnesses:

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