(No Model.)

P. EHRLICH.

DAMPING DEVICE FOR MUSIC BOXES.

No. 579,386. Patented Mar. 23, 1897.

Fig. 1.

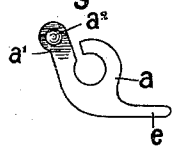

Fig. 2.

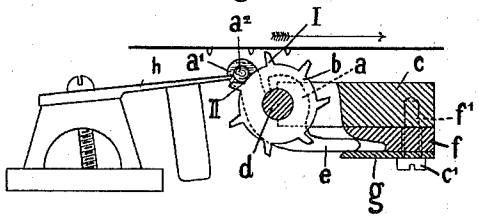

Fig. 3.

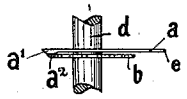

Fig. 4.

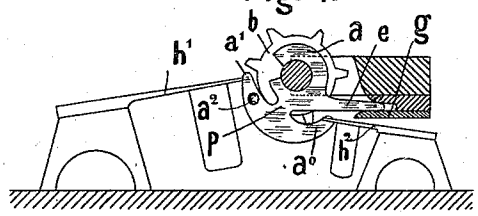

Fig. 5.

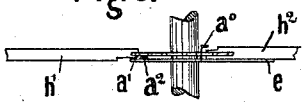

Fig. 6.

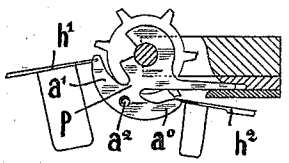

Fig. 7.

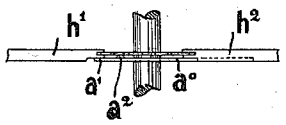

Fig. 8.

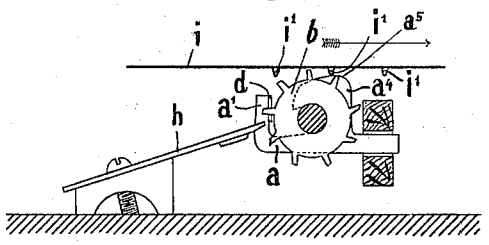

Fig. 11.

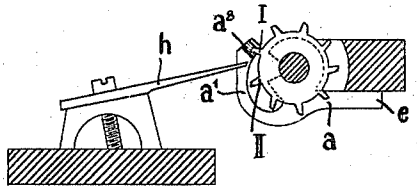

Fig. 9.

Fig. 10.

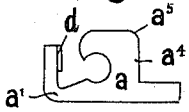

Fig. 12.

Witnesses

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Wallace Beck

Inventor

Paul Ehrlich

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his attorney

UNITED STATES PATENT OFFICE.

PAUL EHRLICH, OF GOHLIS, NEAR LEIPSIC, GERMANY.

DAMPING DEVICE FOR MUSIC-BOXES.

SPECIFICATION forming part of Letters Patent No. 579,386, dated March 23, 1897.

Application filed September 18, 1895. Serial No. 562,843. (No model.)

To all whom it may concern:

Be it known that I, PAUL EHRLICH, a subject of the King of Saxony, residing at Gohlis, near Leipsic, in the Kingdom of Saxony, German Empire, have invented a new and useful Damping Device for Music-Boxes, of which the following is a specification.

Music-boxes with vibrating reeds which are actuated by means of star-wheels must be provided with a device for damping the reed and for stopping the rotation of the wheel each time one tooth of the same has struck the reed to make it vibrate and sound. This is generally effected by flat springs which bear against the wheels and which are fixed below the wheels or reeds. Such arrangement, however, is a source of inconvenience on account of the impossibility of exactly adjusting the flat springs.

The present invention has for its object to provide music-boxes of the above-named type with a device for the described purposes, which device is fixed aside of the wheel, so that it can easily be adjusted. This device consists in a slotted bracket with a central hole for the axle that carries the star-wheel and an arm with a small projection that lies in the path of the respective wheel in such a manner that the projection bears against that tooth of the wheel which is in position to strike the reed.

In the accompanying drawings, Figure 1 is a front view of said device; Fig. 2, a sectional face view of the same arranged on the wheel-spindle and showing it in working position; Fig. 3, a plan view showing separately the device fixed on the spindle close to the wheel. Figs. 4 and 5 are a sectional face view and a plan view, respectively, of the device arranged for synchronously actuating a pair of reeds. Figs. 6 and 7 are views, respectively, similar to those of Figs. 4 and 5, but showing a different arrangement of the damping device. Figs. 8 to 12 are partly plan views, partly face views, showing constructional modifications of essential parts of the damping device.

Fig. 1 represents the damping device, consisting of an open bracket a, one arm a' of which is provided with a projection a^2. This damper is, as shown in Fig. 3, loosely disposed on the spindle d of the star-wheel b and is prevented from rotating thereon by the extension e, held between the ledges f and g of the spindle-carrying frame. (See Fig. 2.) The ledges are fixed to the frame proper, c, by means of screws c'. The ledge f, being provided with a somewhat oblong hole f', allows of being displaced in the direction toward the star-wheels for the purpose of exactly adjusting the damping devices. The operation of the latter is as follows: In the position shown in Fig. 2 the arm a' of the damper just touches the reed h, and the projection a^2 lies between that tooth I which has just struck the reed and the one which is going to lift it, II. This tooth II on being advanced first meets the projection a^2, and on passing the same pushes the arm a' from off the reed, which is thereby made free to vibrate on being struck by the tooth. As soon as this tooth II has passed the free end of the reed it slips down the projection a^2 of the arm a' and takes the position of tooth I, Fig. 2, and the arm a' again bears against the reed, whereas the projection a^2 prevents the further rotation of the wheel.

It is obvious that the damping device may be provided with a double arm for the purpose of synchronously acting upon two phonetic organs, as shown in Figs. 4 to 7. In this modification the reeds h' h^2 are damped simultaneously by the edges a' a^0 of the double arm p, the projection a^2 of which may be arranged either near the end of one arm, Figs. 4 and 5, or in the middle between the arms, Figs. 6 and 7. In the former case the edges a' a^0 touch the reeds h' h^2 from opposite sides, edge a^0 being curved or bent at right angles around the reed h^2, Fig. 5, while in the latter both edges touch the reeds on the same side.

Constructional modifications of the disk a are shown in Figs. 8 to 12.

Instead of the spheroidic projection a flat semilunar stud d may be provided, as illustrated by Figs. 8 to 10, on the arm a', projecting at right angles from the inner rim of the arm. Moreover, the disk shown in Figs. 8 to 10 has a shape somewhat differing from that illustrated in the former figures. This shape has nothing to do with the described modification of the arm a', but may also be given to any device arranged according to the present invention. The said difference

in shape consists in the main body of the disk being elevated above the upper end of the arm a', so that during the rotation of the music-sheet i the projection or nose i', Fig. 8, which bears against a tooth of the wheel b in order to rotate it and make the reed sound, is compelled to release this tooth for the purpose of the wheel being stopped when reaching the upper rim a^5 of the elevated part a^4. The advantage of this arrangement becomes evident from the fact that the surfaces of music-sheets (made from sheet metal) frequently become uneven from protracted use, so that their projections may bear against the teeth of the star-wheels for a longer space of time than is desired or useful for the clearness and distinctiveness of the tune. This disadvantage is obviated by a damping-disk arranged according to Figs. 8 to 10.

A further modification of the part projecting from the arm a' is shown in Figs. 11 and 12, where at the end of the arm a recess a^8 is provided into which the tooth I falls shortly after having struck the reed, whereupon the arm bears against the reed with damping effect and again is brought out of contact with the reed, when the next tooth II advances in order to strike the reed.

What I claim, and desire to secure by Letters Patent, is—

In music-boxes the combination with the star-wheel b, of a slotted bracket a, disposed on the spindle of the star-wheel, and having a tail end e, a yielding arm a', and an extension a^4, to partly encircle the spindle, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

PAUL EHRLICH.

Witnesses:
RUDOLPH FRICKE,
OTTO DOEDERLEIN.