(No Model.) 3 Sheets—Sheet 1.

# L. HÖSSLY.

## MUSICAL BOX.

No. 588,433. Patented Aug. 17, 1897.

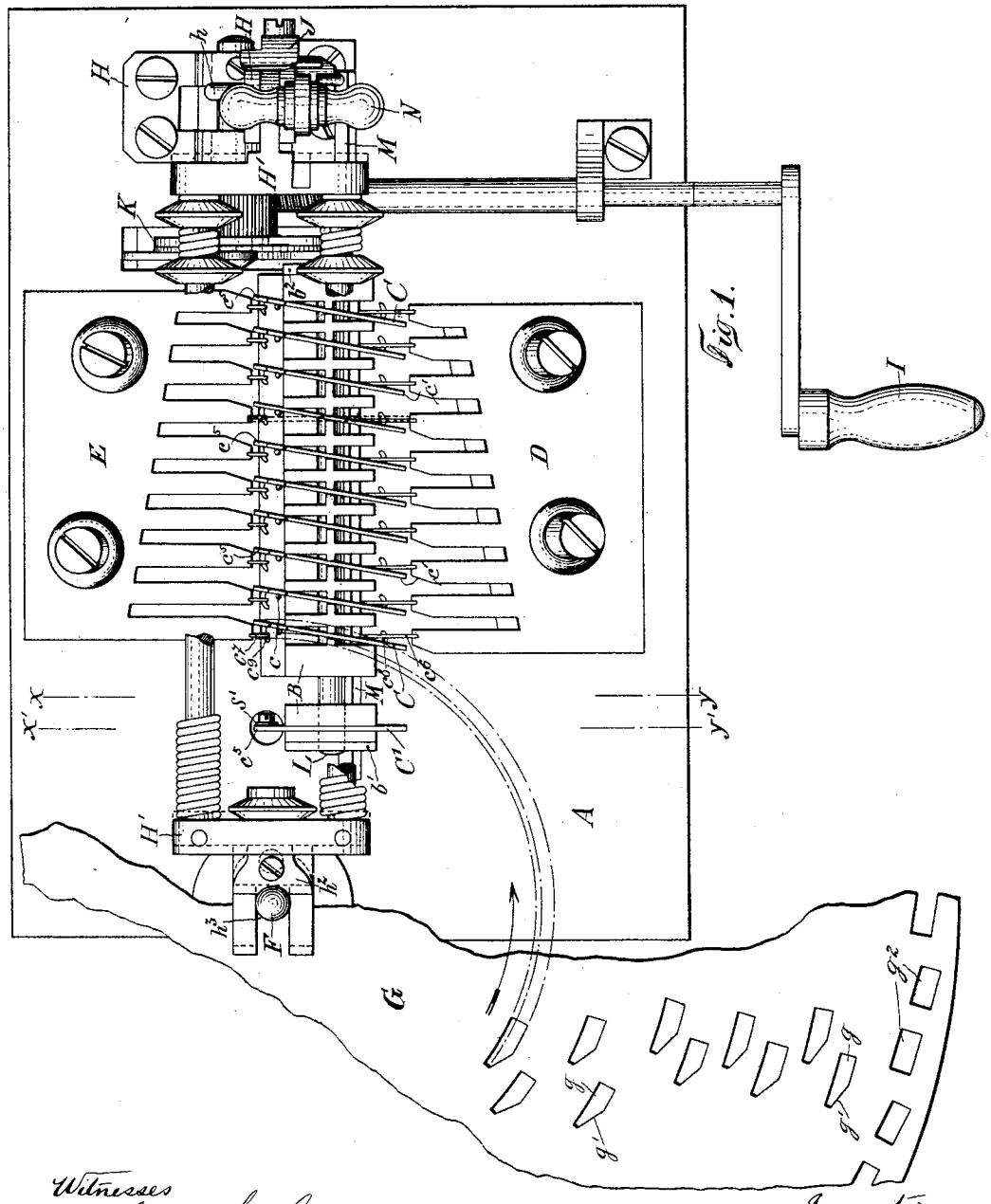


Fig. 1.

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Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

# L. HÖSSLY.

## MUSICAL BOX.

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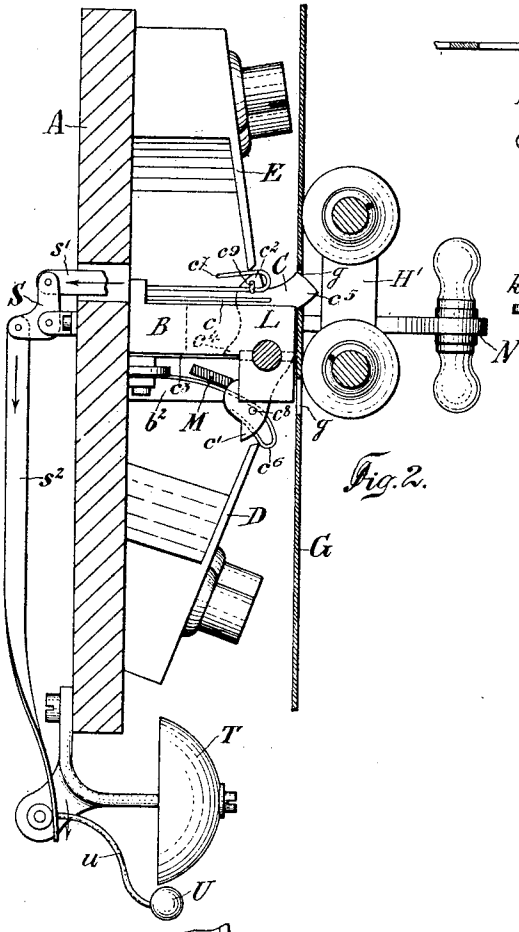



Fig. 2.

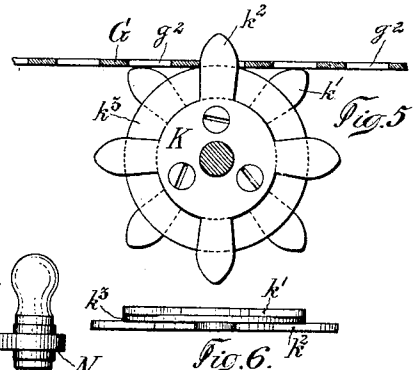



Fig. 5.




Fig. 6.

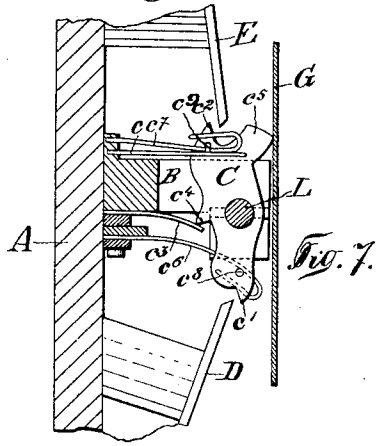



Fig. 7.

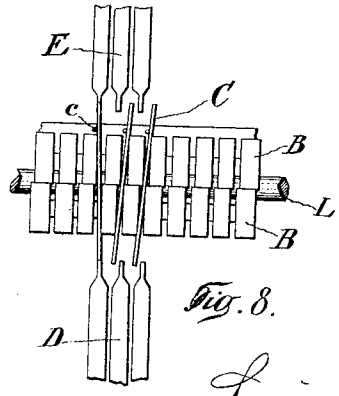



Fig. 8.

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(No Model.) 3 Sheets—Sheet 3.

# L. HÖSSLY.

## MUSICAL BOX.

No. 588,433. Patented Aug. 17, 1897.

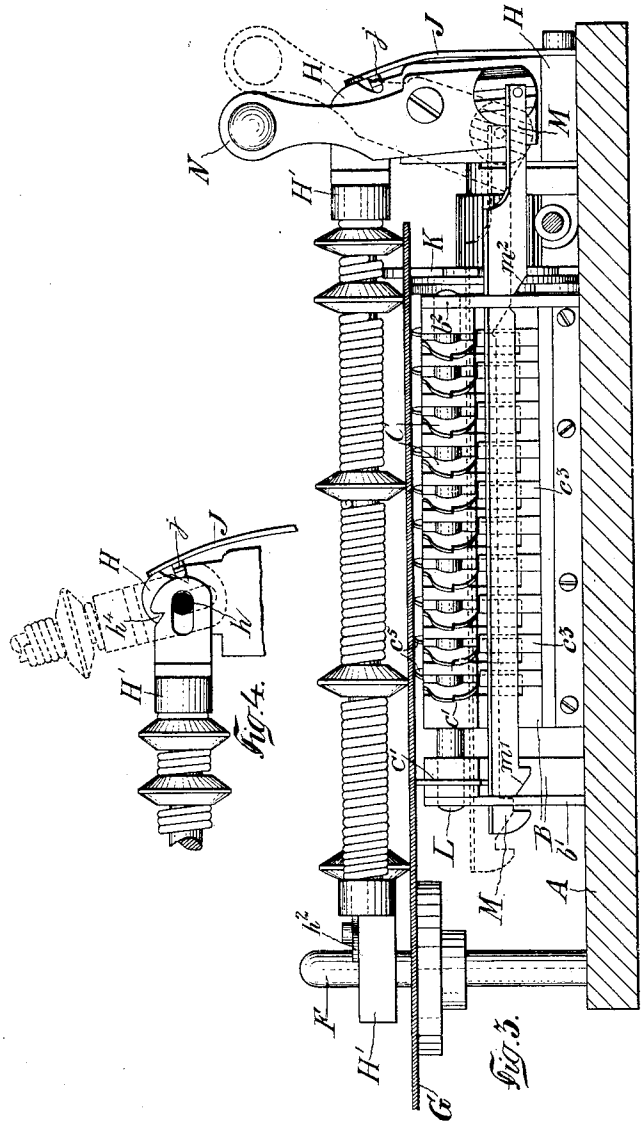


Fig. 4.



Fig. 3.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

LOUIS HÖSSLY, OF STE. CROIX, SWITZERLAND, ASSIGNOR TO HERMANN THORENS, OF SAME PLACE.

## MUSICAL BOX.

SPECIFICATION forming part of Letters Patent No. 588,433, dated August 17, 1897.

Application filed May 27, 1897. Serial No. 638,378. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS HÖSSLY, mechanician, of Ste. Croix, Switzerland, have invented certain new and useful Improvements in Musical Boxes, of which the following is a specification.

The invention consists of certain new and useful improvements in musical boxes in which the sounding of the teeth of the comb is caused with the help of a perforated sheet. Heretofore such sounding was produced for each tooth of the comb by means of a suitable star-wheel which was rotated by the perforated sheet each time one of its teeth engaged one of the holes of said sheet and which thereby acted upon the corresponding tooth of the comb. Now in the present invention the said rotating star-wheels are replaced by suitable rocking levers, which are so arranged that they are normally placed out of the vertical plane containing the tooth of the comb which they are intended to act upon and that they are placed into the said plane by means of the perforated sheet somewhat before the sounding action occurs.

The invention further comprises suitable damping devices acted upon by the said rocking levers and a combination of similar rocking levers with a bell-ringing mechanism.

The musical boxes constructed according to my invention may be provided either with one or with two combs.

In the accompanying drawings I have shown by way of an example a musical box provided with two combs.

In said drawings, Figure 1 is a plan view of the whole of the work with some parts of it broken away. Fig. 2 is a transverse section of Fig. 1, that portion of the work which is placed above the frame A being cut through the line $x\ y$ of Fig. 1 and that portion of the same which is placed beneath the frame A being cut through the line $x'\ y'$ of Fig. 1. In this figure the lever C is shown as having its tooth $c^5$ engaging one hole of the sheet G. Fig. 3 is a longitudinal section of Fig. 1, showing the work in front elevation. Fig. 4 shows separately the hinge of the arm H'. Fig. 5 is an elevation, and Fig. 6 a plan view, of the driving-wheel of the perforated sheet. Fig. 7 shows the position of the dampers $c^6$ and $c^7$ when the lever C is lowered by the perforated sheet G. Fig. 8 shows a modified construction of the bearing B.

In all the figures the same letters of reference refer to the same parts.

On the frame A there is provided a bearing B, having a series of suitable cross-slots in which are engaged a series of rocking levers C, having a common axis L on which they are intended to rock vertically. The perforated sheet G is pressed down by means of a suitable frame H' upon the series of levers C, and a motor I of any kind whatever is provided to cause the perforated sheet G to be rotated on its pivot F by means of the star-wheel K.

The holes $g$ of the perforated sheet G are each provided with a tapered edge $g'$, being at an angle with the direction of the sheet, the purpose of this tapered edge $g'$ of the hole $g$ being to cause the tooth $c^5$ of the lever C to be displaced in a lateral direction in view of throwing the said lever C in line with the teeth of the comb which are to be acted upon.

The cross-slots of the bearing B in which the levers C are engaged are provided in their middle portion with a contraction which exactly allows the said levers C to be engaged into it, while the remaining portions of the said slots are somewhat broader than the thickness of the levers C, so that the latter may play laterally in the same, as it is shown in Fig. 1. Each lever C is acted upon by a lateral spring $c$, Fig. 2, fixed to the bearing B, and which holds the same normally in the inclined position shown in Fig. 1, and each lever C is further acted upon by means of a spring $c^3$, also fixed to the bearing B and leaning against a tooth $c^4$ of said lever C and having a tendency to move the latter to its raised position, in which its tooth $c^5$ enters the hole in the perforated sheet G, as shown in Fig. 2.

Now if we consider one of the levers C it will be seen that, according to the above-described arrangement of the same and according to the special form of the holes of the sheet G, the tooth $c^5$ will enter the widest portion of the hole as soon as the same arrives in front of the tooth, and then the inclined edge $g'$ of said hole will move the said tooth $c^5$ laterally, so as to place the lever C in line

with the teeth of the combs. Then the said tooth $c^5$ will be depressed by the sheet G, and thereby its teeth $c'$ and $c^2$ will act upon the corresponding teeth of the combs D and E, which will be sounded.

Each lever C is further combined with two dampers $c^6$ and $c^7$, each formed of a wire fixed at its base to the frame and having its upper end suitably bent to bear normally against the corresponding teeth of the comb when the lever C is in its raised position, as shown in Fig. 2. The said lever C bears laterally-projecting pins $c^8$ and $c^9$, arranged so as to engage the dampers $c^6$ and $c^7$ and to withdraw the same out of reach of the corresponding teeth of the comb when the lever C is rocked from the position shown in Fig. 2 to that one shown in Fig. 7. Thus the said dampers bear against the teeth of the combs just before the latter are sounded by the teeth $c'$ and $c^2$, and they are withdrawn from the same just when the same are sounded.

The rotation of the perforated sheet G is caused by means of a star-wheel K engaging the holes $g^2$ of the same and constructed, as shown in Figs. 5 and 6, and formed of two superposed stars $k'$ and $k^2$, between which an intermediate plate $k^3$ is arranged.

M is a stopping-rod which is intended to set all the rocking levers C into their depressed position when the sheet G is to be withdrawn. The said rod M has two inclines $m'$ and $m^2$ engaging suitable outcuts of the plates $b'$ and $b^2$, fixed to the frame B. As is shown in Fig. 3, when the rod M is thrown to the right it allows the levers C to be raised by their respective springs $c^3$ into the position in which their teeth $c^5$ engage the holes of the perforated sheet G, and when the said rod M is thrown to the left, as shown in dotted lines in Fig. 3, it raises the opposite end of the levers C and rocks the whole series of the same into the position in which their teeth $c^5$ do not engage the holes of the sheet G.

The rod M is acted upon by means of a hand-lever N, but the latter is at the same time combined with the frame H', so as to be automatically lifted when the said frame H, is lifted. The purpose of this arrangement is to insure the automatical setting of the levers C out of reach of the sheet G as soon as the latter is no more depressed by the frame H'. The said frame H' has at one end a slot through which the pivot $h$, fixed to the bearing H, passes, the said frame H' being thus capable of longitudinal movement upon the said pivot $h$ for engaging and disengaging the plate $h^2$ at one end of the opening $h^3$ from a notch in the pivot F for holding the said frame H' when depressed or for releasing the same. The spring J has a tooth $j$ and the frame H' has a notch $h^4$, which engage with one another when the frame H' is raised for holding the frame in its raised position.

The work may further be combined with one or more levers C', which are similar to the levers C, having each a tooth $c^5$, intended to enter the holes of the perforated plate G. The said levers C' are also in a transverse slot of the bearing B; but they are not adapted to be laterally moved like the said levers C, they only having to be vertically oscillated in view of ringing a bell T. For that purpose the lever C' is connected by means of a rod $s'$ to a bell-crank lever S, suitably pivoted beneath the plate A, and the said bell-crank lever S is connected, by means of a rod $s^2$, with the rod $u$ of a hammer U, intended to ring the bell T. Each time the tooth $c^5$ of the corresponding lever C' engages a hole $g$ of the perforated plate G the hammer U strikes the bell T.

The bearing B may be constructed as shown in Fig. 8, in which it is formed of two halves, which are longitudinally displaced the one with regard to the other, so as to form on the adjacent portion of the said two halves contractions which are equivalent to those obtained by means of central projections in the bearing B. (Shown in Fig. 1.)

Having thus fully described my invention, I claim—

1. In musical boxes, the combination with a bearing having a series of slots provided with a central contraction, of a series of rocking levers in the said slots and on a suitable axis, the said levers having teeth entering the holes of a perforated sheet and for acting upon the teeth of the comb or combs, and springs for setting the said rocking levers into an inclined position and a perforated sheet the holes of which have each inclined edges to laterally displace the rocking levers, substantially as and for the purpose specified.

2. In musical boxes, the combination with a bearing having a series of slots provided with a central contraction, of a series of rocking levers in the said slots and on a suitable axis, the said levers having teeth entering the holes of a perforated sheet and for acting upon the teeth of the comb or combs, and springs for setting the said rocking levers into an inclined position and a perforated sheet the holes of which have each an inclined edge to laterally displace the rocking levers, dampers that normally bear against the teeth of the combs, and lateral projections on the rocking levers for withdrawing the dampers, substantially as and for the purpose specified.

3. In musical boxes, the combination with a bearing B having a series of slots provided with central contractions, of a series of rocking levers C in the said slots and on a suitable axis L, the said levers having teeth $c^5$ for entering the holes of a perforated sheet G and for acting upon the teeth of the comb or combs, and springs for setting the said rocking levers into an inclined position, and a perforated sheet G, the holes $g$ of which have each a tapered or inclined edge $g'$ to laterally displace the rocking levers C, a rocking lever C' and lever for ringing a bell, substantially as shown and described.

4. In musical boxes, the combination with

a bearing B having a series of slots and central contractions, of an axis L and a series of rocking levers C within the said slots, and having suitable teeth $c^5$ for engaging the holes of a perforated sheet G and for acting upon the teeth of the comb or combs, and springs for setting the said rocking levers into an inclined position, and a perforated sheet G, the holes of which have each inclined edges $g'$ to laterally displace the rocking levers C, the rocking lever C′, the bell T and suitable levers for ringing the same, a stopping-rod M to act on the several levers C so as to put their teeth $c^5$ out of reach of the perforated sheet G, substantially as and for the purpose specified.

5. In musical boxes, the combination with a bearing B having a series of slots provided with central contractions, of a series of rocking levers C within the said slots and a suitable axis L therefor, the said levers having suitable teeth $c^5$ for engaging the holes of a perforated sheet G and for acting upon the teeth of the comb or combs, and springs arranged for setting the said rocking levers into inclined positions and a perforated sheet G, the holes $g$ of which have each an inclined edge intended to laterally displace the rocking levers C, the rocking lever C′ for ringing a bell T, a driving-wheel K formed of two superposed star-wheels $k'$ and $k^2$ and of an intermediate disk $k^3$ and a frame H′ having a notch in combination with a spring J having a tooth $j$ to engage the said notch $h^4$, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS HÖSSLY. [L. S.]

Witnesses:
E. IMER-SCHNEIDER,
HERMANN THORENS.