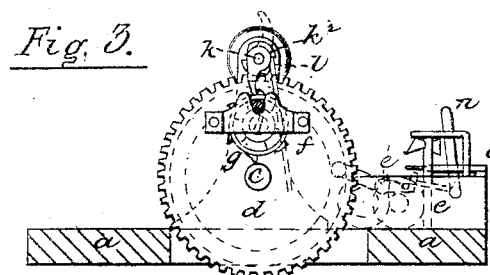
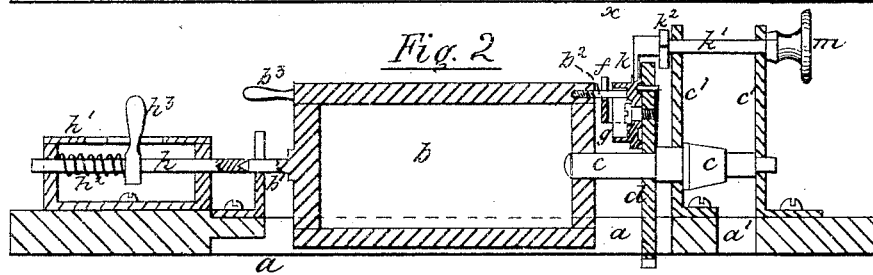
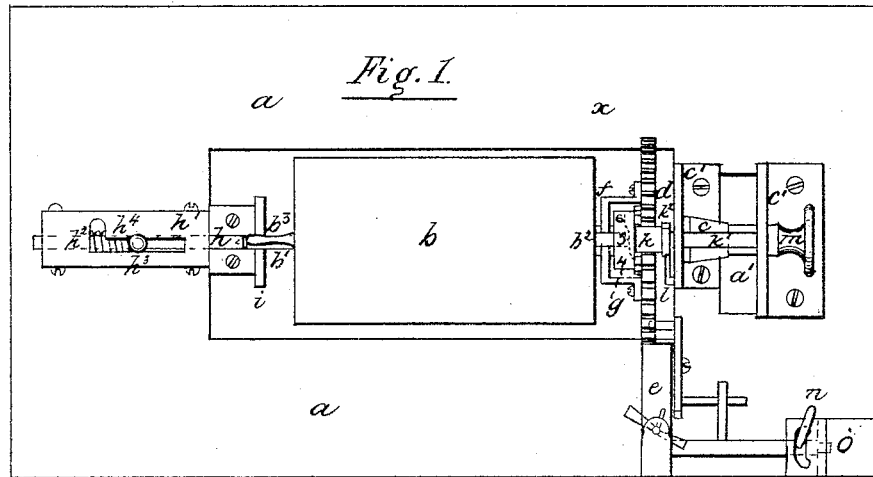


H. J. A. MÉTÉRT.  
Musical-Box.

No. 215,146.

Patented May 6, 1879.



Witnesses.

William Shepley.  
H. Williams.

H. Métért.

Inventor.

per Alfred Shepley  
Atty.

# UNITED STATES PATENT OFFICE.

HENRI J. A. MÉTERT, OF GENEVA, SWITZERLAND, ASSIGNOR TO M. J. PAILLARD & CO., OF NEW YORK, N. Y.

## IMPROVEMENT IN MUSICAL BOXES.

Specification forming part of Letters Patent No. **215,146**, dated May 6, 1879; application filed January 24, 1879.

*To all whom it may concern:*

Be it known that I, HENRI J. A. MÉTERT, of Geneva, Switzerland, have invented certain new and useful Improvements in Musical Boxes, of which the following is a specification.

This invention relates to musical boxes which are constructed to allow of the ready insertion and removal of various interchangeable pin-studded cylinders; and consists of certain improvements in the construction of the pin-studded cylinder, and of the various parts whose combined functions operate to work and control the cylinder, all of which will be fully hereinafter described, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of said improvements. Fig. 2 is a longitudinal sectional view taken through the center of the cylinder. Fig. 3 is a transverse section cut through the line *x x*.

*a* is the bed-plate, open in the center to admit the pin-studded cylinder *b*, and at the ends of it are secured the supports for the cylinder and its operating mechanism. The cylinder *b*, instead of having a shaft pass through it, and upon which to slide to change the airs by bringing the different rows of pins opposite the combs, as in the ordinary musical box, is provided at one end with a short shaft, *b'*, securely fixed in the head of the cylinder. The other head has a central hole, into which the end of the shaft *c* fits. This shaft works in bearings in the standards *c' c'*, and is driven by a gear on the spring-drum projecting up through the opening *a'* in the table, and meshing into a pinion secured to the shaft between the standards *c' c'*. This driving mechanism (not shown in the drawings) is of the ordinary construction, and is placed under the bed-plate *a*. On the shaft *c*, outside the standards *c' c'*, is fitted the gear-wheel *d*, which drives the regulating mechanism *e* through the train of gear-wheels *e'*, (shown in dotted lines in Fig. 3,) and to the wheel *d* is secured the slotted dog *f*. In the slot fits the pin *b''*, projecting out from the end of the cylinder *b*, so that the cylinder is caused to revolve with the shaft *c*. The pin *b''* is so located

in the end of the cylinder that when the parts occupy the position shown in the drawings—that is, with the air-changer just about to act, and the clear space of the cylinder, or the part where the pins finish the tunes, is opposite the points of the comb—the end of said pin *b''* is caused to bear against the cam-faced ratchet *g*, which is provided with the same number of ratchet-teeth on its periphery, and rises to the cam on its face, as the number of tunes the cylinder is constructed to play by means of the spring-acted bolt *h*, the construction and operation of which are as follows:

The bolt is fitted in holes in the sides of the frame *h'*, which is secured to the bed-plate *a* so as to be directly in line with the shaft *c*, and is pressed toward it by the spring *h''* acting against a shoulder or collar on the bolt *h* and the inside of the back bearing of the frame *h'*. The handle *h'''*, fastened to the bolt *h*, passes through the slot *h''''* in the cover, and by means of it the bolt is pressed back against the action of the spring *h''*, and held back by the handle catching in a side notch at the end of the slot *h''''*, so as to admit of the cylinder being placed in position, which is done by lifting it by the knob *b'''* and the pin *b''*, setting the short shaft *b'* in the open bearing *i*, and the pin *b''* in the slot in the dog *f*, the shaft *c* entering the hole in the head. Then, upon allowing the bolt to be thrown forward by its spring, the pin *b''* is pressed against the cam on ratchet *g*, and the cylinder held securely in place, as the end of the shaft *b'* is pointed, and the end of the bolt *h* correspondingly recessed.

The cam-faced ratchet *g* on the wheel *d* is moved the space of one tooth every time it is carried by the pawl *k*. This pawl is fastened on one end of the shaft *k'*, which passes through holes in the upper part of the standards *c' c'*, and is held in position, so as to catch in the teeth of the ratchet *g*, by the spring *l*, fitting in a notch in the collar *k''*, and by turning the pawl *k* away from the ratchet, as shown by dotted lines, Fig. 3, by means of the milled head or button *m* on the other end of the shaft *k'*, the ratchet will pass by it without being moved, thus allowing any one of the airs to be repeated as often as desired; and

when it is desired to cause the instrument to play any particular air the pawl *k* is turned round when the cylinder is at rest until certain numbers or marks on the different rises of the cam on the ratchet *g* are in such position as indicate that the particular air wanted will be next rendered.

The starting and stopping lever *n* passes up through a curved slot in the bent plate *o*. This plate is made spring-acting, so that the lever *n* is held securely at either end of the slot in which it may be placed.

I do not wish to confine myself to the particular arrangement of the various parts as shown, as it is obvious they may be combined and arranged in several different ways, and any one of my improvements may be applied to musical boxes with or without any of the others; but

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

1. As an improvement in musical boxes, the cylinder *b*, provided with the short shaft *b*<sup>1</sup>, secured firmly at one end of it, and a central hole at the other end for the admission of the driving-shaft, substantially as and for the purposes hereinbefore set forth.

2. The cylinder *b*, in combination with the open support *i* and spring-acted bolt *h*, substantially as and for the purposes hereinbefore set forth.

3. The cylinder *b*, supported at one end by the short shaft *b*<sup>1</sup>, fitting into the open support *i*, in combination with the short driving-shaft *c* and a driving device attached thereto, substantially as hereinbefore set forth.

4. The wheel *d*, secured to the shaft *c*, and provided with the slotted dog *f*, in combination with the cylinder of a musical box adapted to fit on the end of the shaft *c*, and provided with the pin *b*<sup>2</sup>, arranged to fit into the slot of the dog, substantially in the manner and for the purpose hereinbefore set forth.

5. The combination of the wheel *d*, slotted dog *f*, cam-ratchet *g*, and cylinder *b*, provided with the pin *b*<sup>2</sup>, which is caused to bear against the cam on ratchet *g* by means of a spring acting against the other end of the cylinder, substantially as hereinbefore set forth.

6. The rotative pawl *k*, arranged to turn the cam-ratchet *g*, and thereby set the cylinder *b* to play any desired tune, as hereinbefore set forth.

7. The combination of the spring *l* with the collar *k*<sup>2</sup> on the pawl-shaft *k*<sup>1</sup>, substantially as described, so as to hold the pawl in position to act on the cam-ratchet *g* as it is being carried by it, or to hold it in position so as not to act on the ratchet, substantially as hereinbefore set forth.

8. The stopping and starting lever *n*, in combination with the spring-support and guide-plate *o*, substantially as and for the purpose hereinbefore set forth.

In witness whereof I have hereunto set my hand this 6th day of November, 1878.

H. MÉTERT.

Witnesses:

AUG. SCHMID,  
PHILIPPE HORNUNG.