(No Model.) 4 Sheets—Sheet 1.

E. F. JACCARD.

MUSIC BOX.

No. 382,879. Patented May 15, 1888.

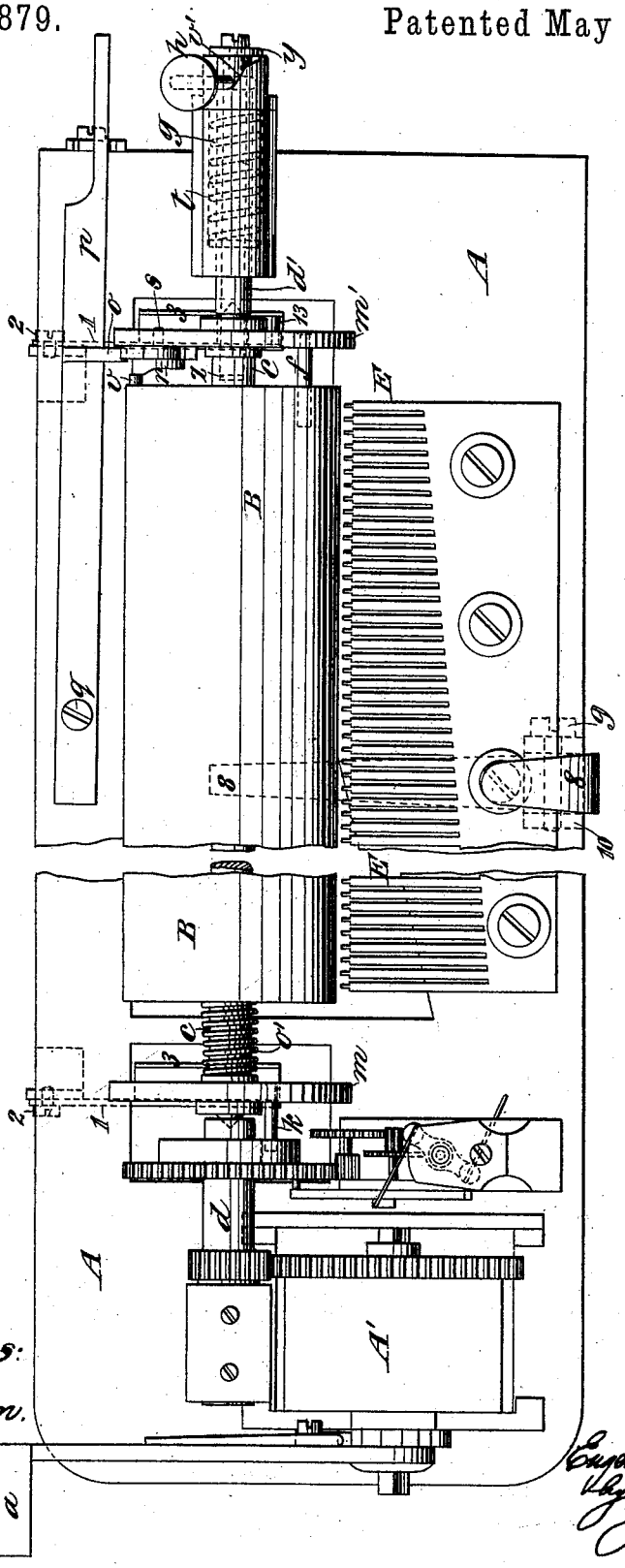


Fig. 1.

Witnesses:
C. L. Sundgren.
Jos. W. Roe.

Inventor:
Eugene Felix Jaccard
by attorneys
Prom & Hall

(No Model.) 4 Sheets—Sheet 2.

E. F. JACCARD.

MUSIC BOX.

No. 382,879. Patented May 15, 1888.

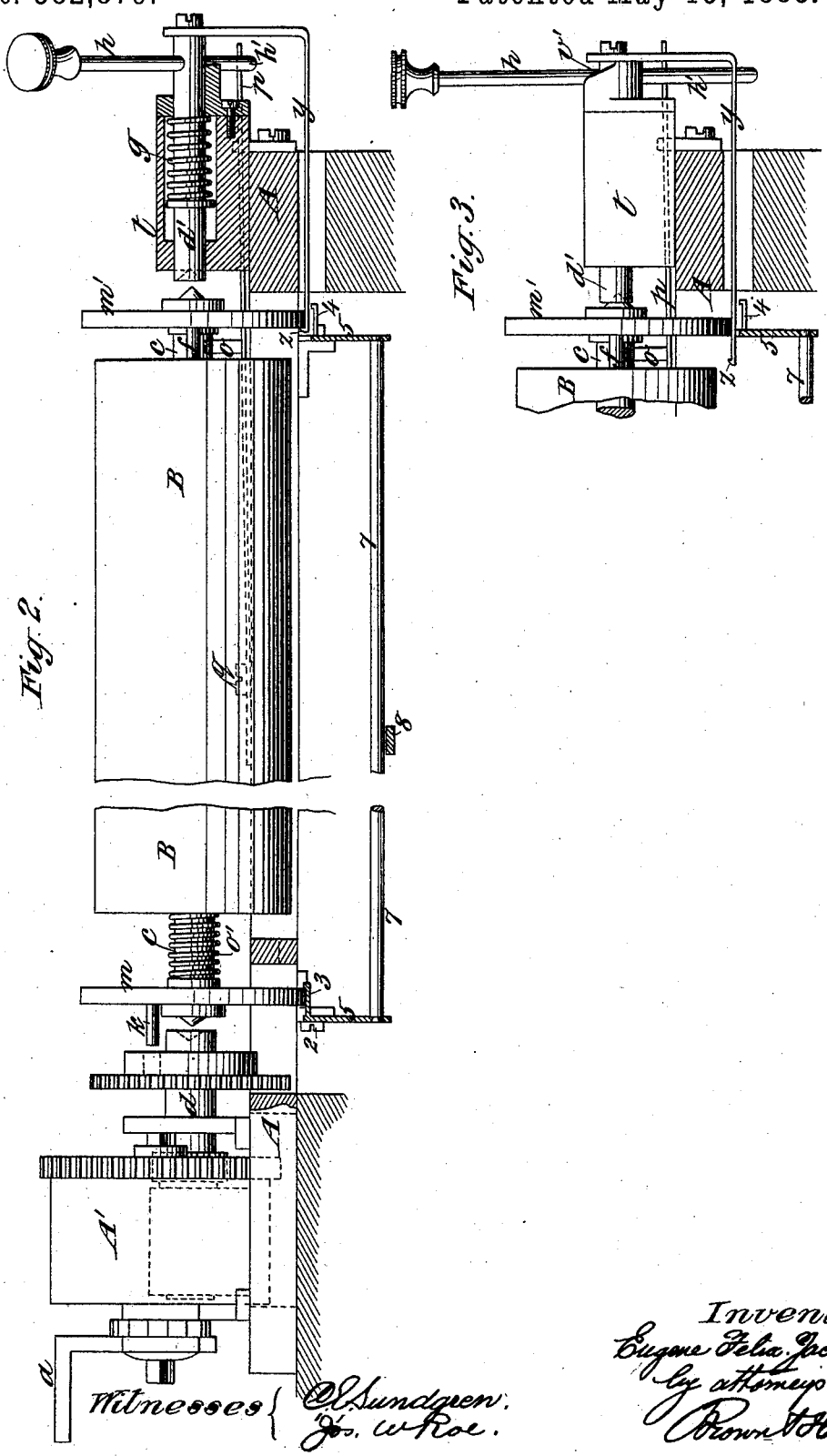


Fig. 2.

Fig. 3.

Witnesses { C. L. Sundgreen. Jno. W. Roe.

Inventor: Eugene Felix Jaccard. by attorneys Brown & Hall

(No Model.) 4 Sheets—Sheet 3.

E. F. JACCARD.

MUSIC BOX.

No. 382,879. Patented May 15, 1888.

Fig. 5.

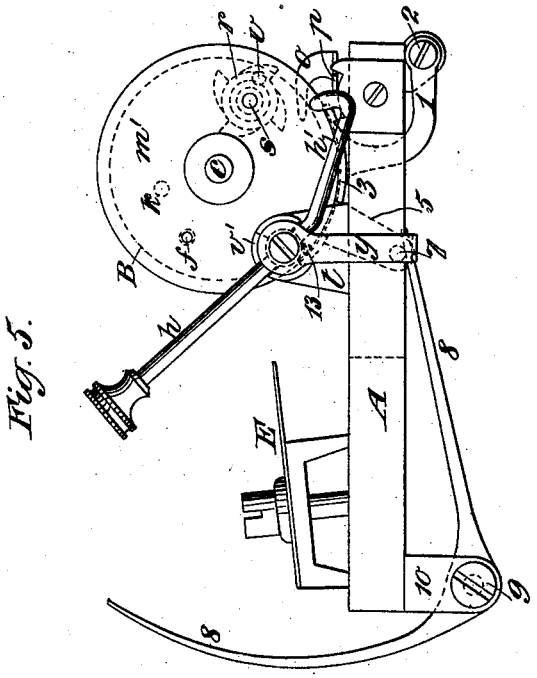
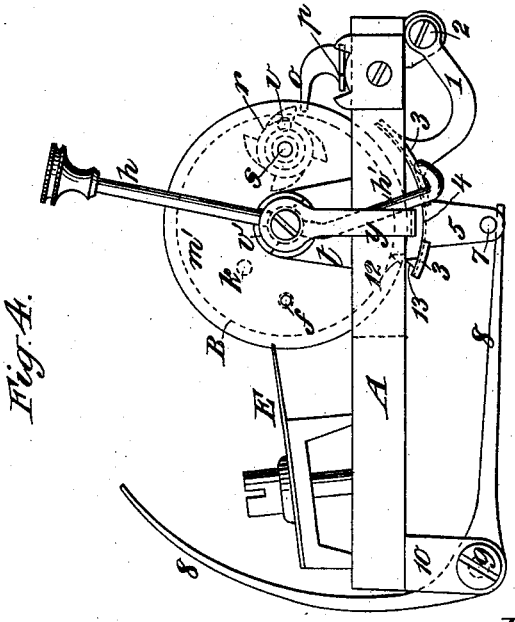


Fig. 4.



Witnesses:
C. L. Sundgren.
Jos. W. Roe.

Inventor
Eugene Felix Jaccard
by attorneys
Brown & Hall

(No Model.) 4 Sheets—Sheet 4.

E. F. JACCARD.

MUSIC BOX.

No. 382,879. Patented May 15, 1888.

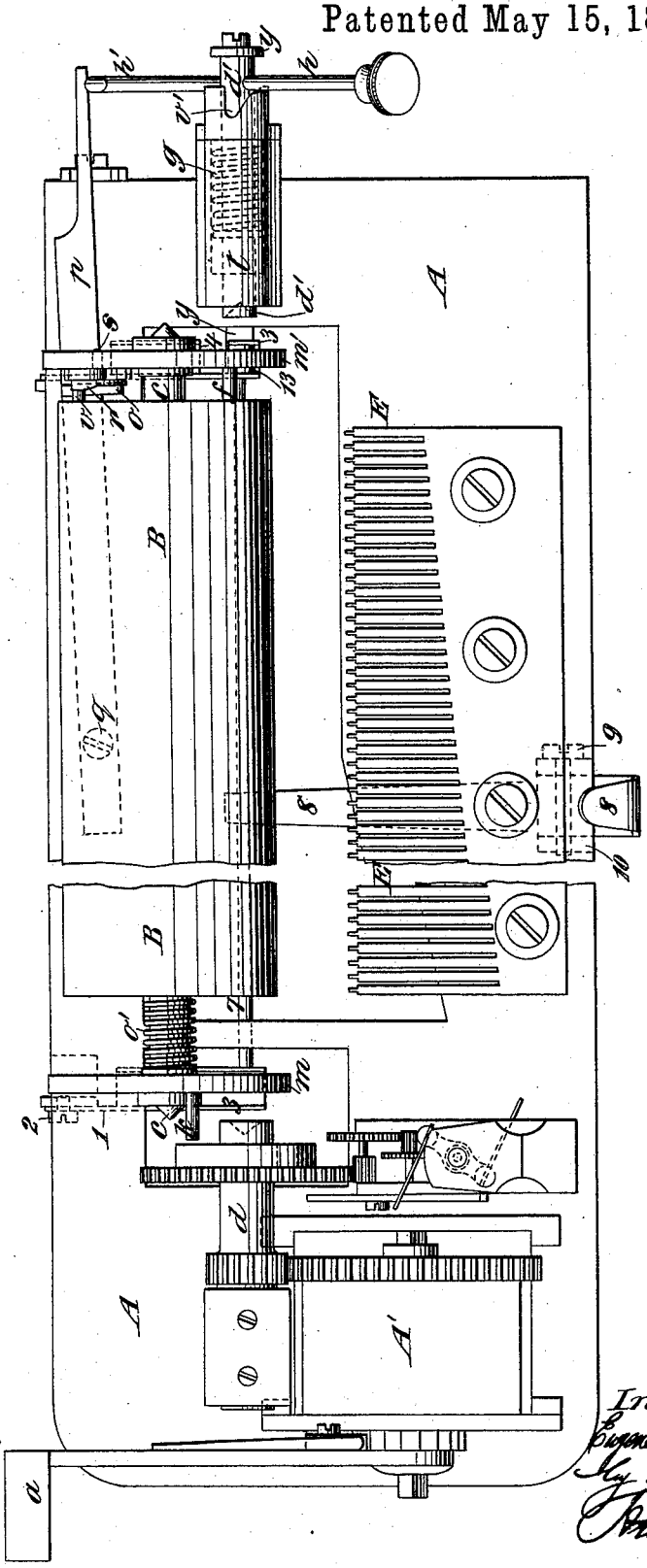


Fig. 6.

Witnesses:
C. L. Sundgren.
Jos. W. Roe.

Inventor:
Eugene Felix Jaccard
by attorneys
Brown & Seal

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

EUGÈNE FÉLIX JACCARD, OF STE. CROIX, SWITZERLAND.

MUSIC-BOX.

SPECIFICATION forming part of Letters Patent No. 382,879, dated May 15, 1888.

Application filed March 30, 1888. Serial No. 268,991. (No model.) Patented in Germany September 6, 1887, No. 42,511.

To all whom it may concern:

Be it known that I, EUGÈNE FÉLIX JACCARD, of Ste. Croix, Switzerland, have invented a new and useful Improvement in Mechanical Musical Instruments, (for which I have obtained a patent of the Empire of Germany, No. 42,511, dated September 6, 1887,) of which the following is a specification, reference being had to the accompanying drawings.

This invention has for its object the exchange of the playing rollers of musical boxes, to withdraw one roller and put in a new one in a safe and easy manner.

The invention is illustrated in the accompanying sheets of drawings, in which—

Figure 1 shows in ground plan the bed-plate and works of a musical box in condition for action. Fig. 2 is a front view of the same, with some of the parts in section and with the music-roller disengaged from its bearings. Fig. 3 is a front view of the right-hand end of the roller and its bearings and appurtenances corresponding with Fig. 1. Fig. 4 represents a right-hand end elevation corresponding with Fig. 1. Fig. 5 represents a similar end elevation showing the roller lifted out of the bearings and ready for removal. Fig. 6 is a plan view corresponding with Fig. 5.

Similar letters of reference desigate corresponding parts in all the figures.

I will first describe the well-known parts of the musical box and then explain the new device.

A designates the bed-plate.

A′ is the spring-case, and *a* the winding-crank.

d is the shaft that transmits the motion to the axle *c* of roller B by a clutch pin or driver, *k*, projecting from a disk, *m*, fastened to axle *c*. The roller B is furnished in the usual manner with pins or projections (not shown) on its surface that strike against the teeth of comb E and produce the music. This roller can be moved in a longitudinal direction on its axle *c*, and is driven from the said axle by a bolt, *f*, attached to a disk, *m′*, that is fixed to said axle. A spiral spring, *o′*, presses the roller B to the right, where it is stopped by means of a projection, *v*, on said end coming against the small step-disk *r*, that turns on a bolt, *s*, fastened to said disk *m′*. This disk *r* has for its object to shift roller B lengthwise on its axle *c* when a new piece or air has to be played. The rollers in musical boxes have generally four airs, (in some cases more or less.) By a catch, *o*, of a lever, *p*, which has its fulcrum on a bolt, *q*, secured in the bed-plate A, the step-disk *r* is turned a certain distance after each full revolution of roller B, and each time the air is changed. All these before-described parts are old and well known in musical boxes.

I will now proceed to describe the device forming the present invention.

The axle *c* is pointed or made with male centers at the ends and rests in corresponding conical recesses or female centers in the axle *d* at one end, and in a sliding bolt, *d′*, placed in the guide box or stand *t* at the other end. This bolt *d′* is pressed by a spring, *g*, toward the roller B; but it can be withdrawn from axle *c* of the said roller by turning a lever, *h*, attached to said bolt, from the position shown in Figs. 1 and 4 into that shown in Figs. 5 and 6. This lever slides in the surface of a curved groove, *v′*, in the stand *t*, and withdraws the bolt when turned in one direction, but is returned in the said groove by the action of the spring *g*, and so replaces the bolt when it is turned in the other direction. A prolongation, *h′*, of the lever *h* acts on the free end of the lever *p* and disengages the catch *o* of said lever from the step-disk *r* at the same time that the bolt *d′* is withdrawn. At the same time that the bolt *d′* is withdrawn the axle *c* of the roller is disengaged from the driving-gear, as shown in Fig. 2, by means of a bar, *y*, one end of which is fastened to the bolt *d′* and the other end of which has an upward projection, *z*, which engages with the disk *m′* of axle *c*, and so pulls the axle and roller lengthwise and withdraws the pin *k* from the driving-gear. The roller is now in the position shown in Fig. 2, and can be lifted out of the machine by taking hold of the two disks *m* and *m′* on the axle *c*. It is, however, more convenient in small boxes to lift the roller partly by a mechanical device before removing it from the machine, and this is done in the following manner: To the bottom of the bed-plate A are secured the fulcrum-pins 2 of two similar levers, 1, furnished each with a curved seat or saddle, 3, situated underneath

the disks *m* and *m'*. These seats or saddles have downwardly-projecting arms 5, connected together by a rod, 7. (See Figs. 2 and 3.) This rod is in position to be acted upon by the horizontal arm of a hand-lever, 8, of which the fulcrum-pin 9 is secured in a hanger, 10, under the bed-plate, the upright arm or handle of the said lever projecting above the bed-plate. When lever 8 is drawn forward from its position shown in Fig. 4 to that shown in Fig. 5, it lifts rod 7 and with it the seats or saddles 3, and so lifts the roller out of its position.

When a roller B has to be placed into the instrument, the lever 8 is drawn forward to the position shown in Fig. 5, and the roller is placed with its disks *m* and *m'* in the raised seats 3. One of these disks, *m'*, (see Figs. 4 and 5,) has in its periphery a notch or recess, 12, which is placed on a projection, 13, of the corresponding seat 3. The object of this notch and projection is to secure the exact position of the roller B with reference to the subsequent engagement of the bolt *k* and driving-gear. After the roller has been properly placed on the lifted seats 3, the said seats are lowered by placing the lever 8 back into the position shown Fig. 4. The lever *h* is then returned into the position shown in Figs. 1 and 4, in consequence of which the bolt *d'* engages the axle *c* and pushes it into the bearing in the shaft *d*, at the same time producing the coupling of the axle and the roller with the driving-gear by causing the driver *k* to engage in the recess or boring of the corresponding part of the driving-gear. The axle and roller are retained in this position and condition by the spring *g*. The right-hand seat, 3, has to be slotted, as shown at 4 in Figs. 2 and 4, to the allow the arm *y* to pass through when the seats 3 are lifted.

From the foregoing description it will be seen that by turning the lever *h* forward the bolt *d'* is withdrawn, and at the same time the lever *p* and catch *o* are disengaged from the step-disk *r*, and the axle *c* is disengaged from the driving-gear.

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

1. The combination of the music-roller and its axle *c*, having on it a disk, *m'*, the driving-shaft *d*, having in it a bearing for one end of said axle, a coupling-connection, *k*, between said axle and shaft, a sliding bolt, *d'*, having a bearing for the other end of said axle, a bearing, *t*, for said sliding bolt, having a curved groove, *v'*, a lever, *h h'*, attached to said bolt and working in said curved groove, and a hooked bar, *y*, connected with said bolt and engaging with the said disk *m'*, all substantially as and for the purpose herein described.

2. The combination, with the music-roller and its axle *c*, provided with disks *m m'*, of the levers 1 1, having fixed fulcrums and provided with seats or saddles 3 3 for said disks, a connecting-bar, 7, between said seats or saddles, and a hand-lever, 8, to operate on said connecting-bar, all substantially as and for the purpose herein described.

EUGÈNE FÉLIX JACCARD.

Witnesses:
F. ENGEL,
H. WITT.