(No Model.) 2 Sheets—Sheet 1.

O. P. LOCHMANN.

MUSICAL BOX.

No. 468,503. Patented Feb. 9, 1892.

Fig. 1.

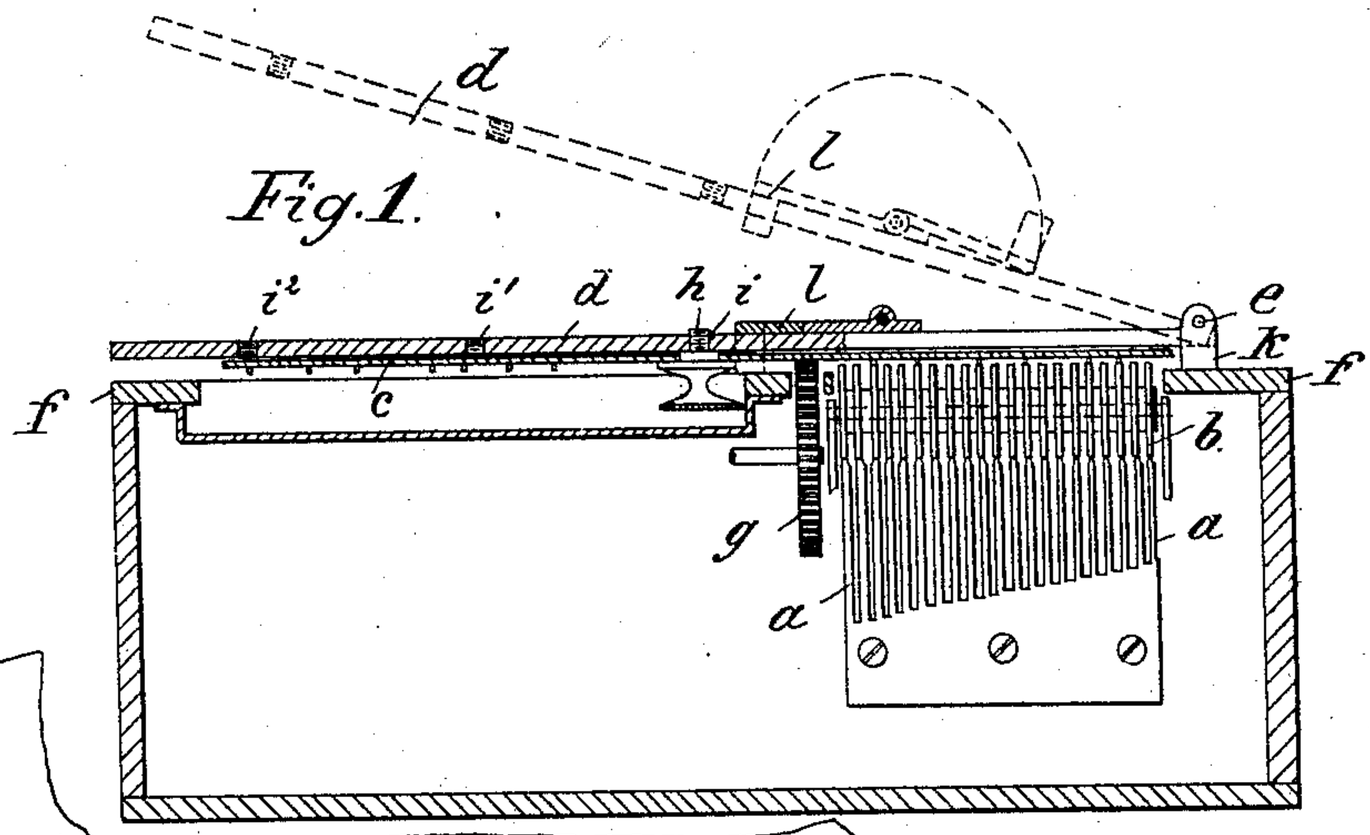
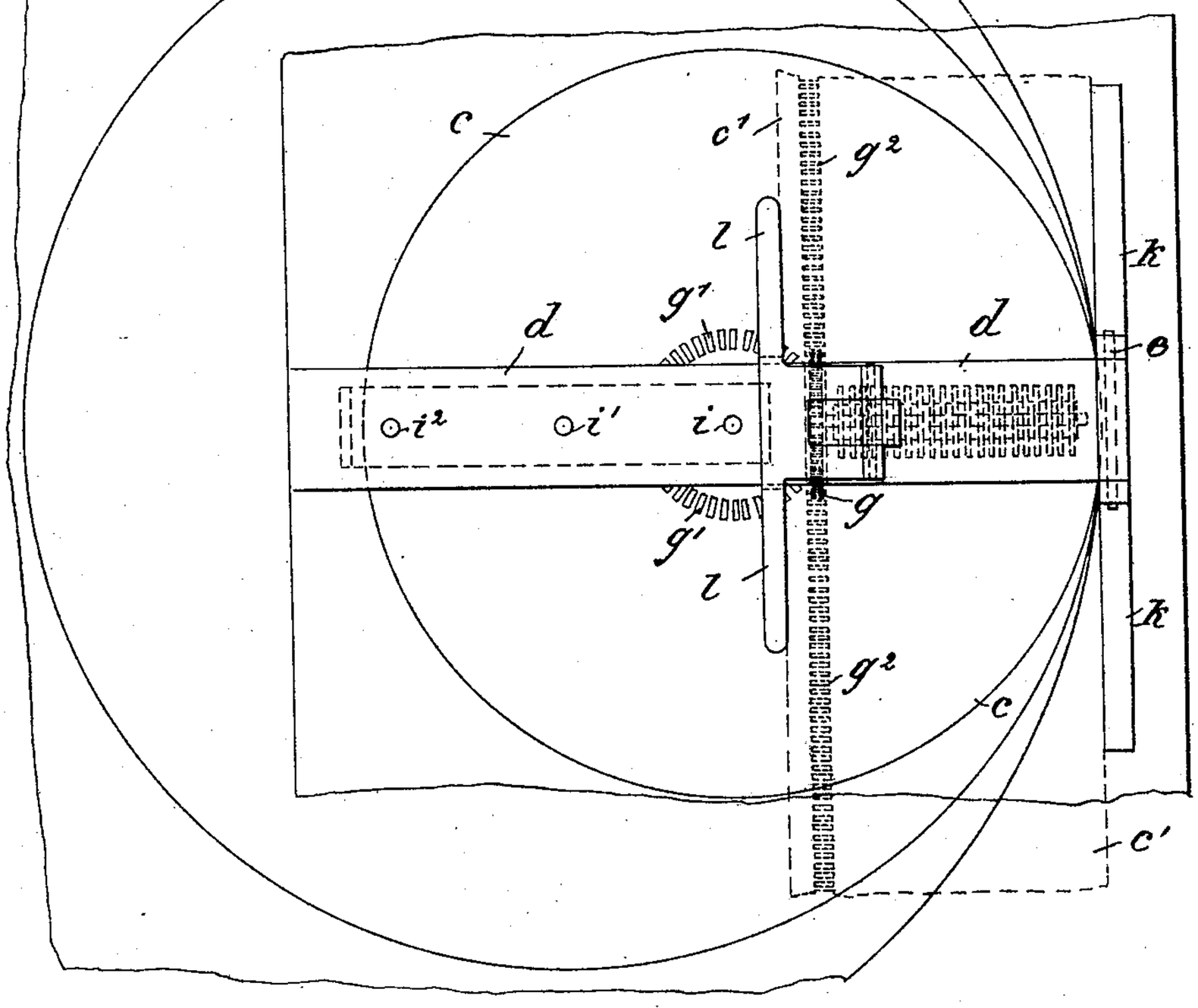


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

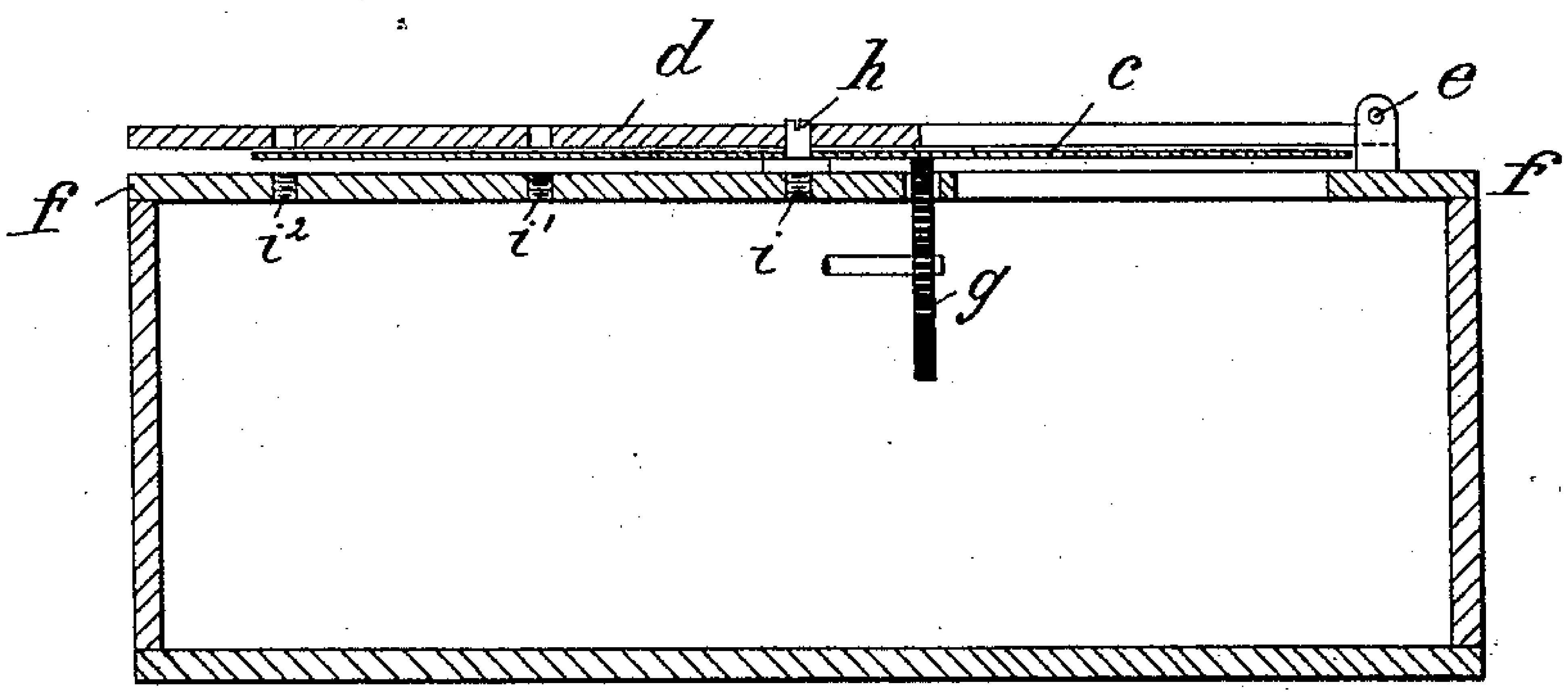


Fig. 4.

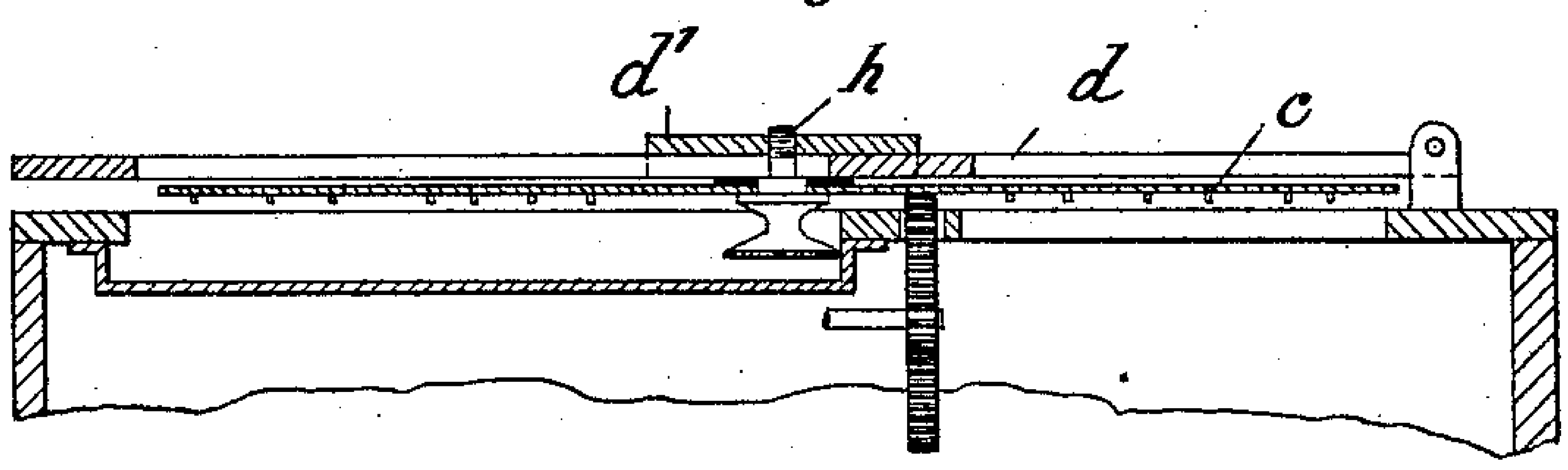
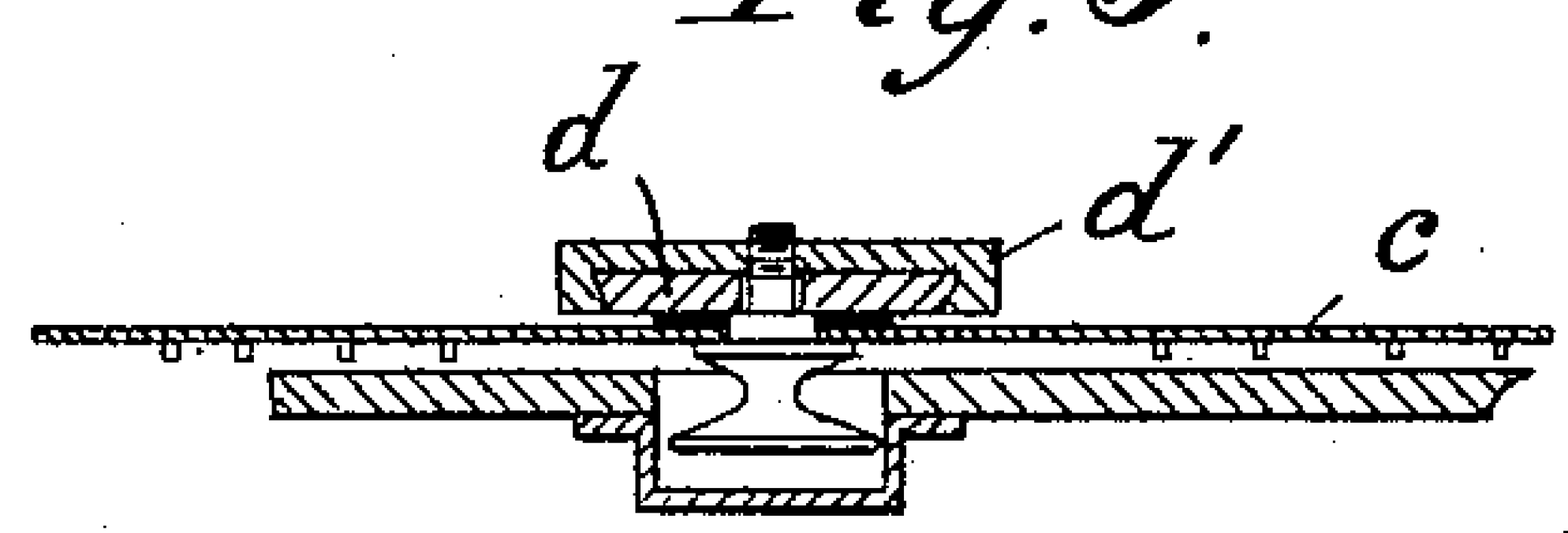


Fig. 5.



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OSKAR PAUL LOCHMANN, OF GOHLIS, GERMANY.

MUSICAL BOX.

SPECIFICATION forming part of Letters Patent No. 468,503, dated February 9, 1892.

Application filed July 15, 1891. Serial No. 399,588. (No model.)

To all whom it may concern:

Be it known that I, OSKAR PAUL LOCHMANN, a subject of the King of Prussia, residing at Gohlis, Leipsic, in the Kingdom of Saxony, German Empire, have invented new and useful Improvements in or relating to Musical Boxes, of which the following is a specification.

This invention relates to improvements in mechanical musical instruments, and especially to that class known heretofore in which music-plates of different diameters, according to the length of the time, can be applied for operating the metal tongues or reeds.

The object of my invention is to provide a simple means for holding such plates of different diameters, so as to act on the tone-producing devices and also to provide means for using rectilinear music-sheets on the same instrument.

In the accompanying drawings, Figure 1 is a vertical central longitudinal sectional view of my improved musical box. Fig. 2 is a plan view of the same, parts being broken out. Fig. 3 is a vertical longitudinal sectional view showing a modified construction. Fig. 4 is a similar view showing another modification, and Fig. 5 is a vertical transverse sectional view of the construction shown in Fig. 4.

Similar letters of reference indicate corresponding parts.

The metal tongues or reeds *a* are actuated by small spur-wheels *b* in the usual way, these wheels being turned by the pins of the tune-plate *c*. The tune-plate *c* is secured to the bar *d*, so that when said bar descends upon the upper plate *f* of the instrument the pins of the plate *c* take up their operative position—namely, that in which they will act upon the spur-wheels *b*. The plate *c* receives rotary motion from the gear-wheel *g*, which is itself rotated either by hand, clock-work, or any other suitable motor. The wheel *g* gears with a toothed crown *g'*, provided on the tune-plate, and thus causes this plate *c* to turn on its spindle *h*. The bar *d* is provided with a number of openings *i i' i²*, arranged in succession and at a gradually-increasing distance from the gear-wheel *g*.

In the example shown the tune-plate is secured to the bar *d* by a set-screw *h*, fitting the screw-threaded opening *i*. The next size of plate is similarly secured by means of a screw fitting the opening *i'*, and for the third size the screw will be inserted into the opening *i²*. Whatever the size of the plate it will be seen that the toothed crown *g'* remains at the same distance from the plate, so that the circumferential speed of the tune-plates of different dimensions remains equal in all cases, and therefore the speed with which the plate travels over the wheels *b* is the same. Therefore whatever the size of the tune-plate the piece of music thereon will always be properly timed.

The tune-plates employed in this instrument may be adapted to move in a straight line. For this purpose the plates *c'*, Fig. 2, on one side are provided with teeth or equivlent *g²*, gearing with the wheel *g*. When this wheel *g* turns, the plate *c'* is drawn along rectilinearly over the wheels *b*. To guide these plates *c'*, suitable guides are provided on the top plate *f* of the casing, between which the plate is caused to travel, so that it cannot be displaced laterally. One guide-rail *k* is permanently secured to the top plate *f*, while the other *l* is connected with the bar *d* by means of a hinge, so that it may be turned down when required for use. When the bar *d* is pressed down, the guide-rail *l* takes up its position upon the top plate *f* and guides that side of the tune-plate on which are situated the teeth *g²*. This movable arrangement of the guide-rail is necessary to allow of said guide-rail being removed when rotary tune-plates are used, with the motion of which it would otherwise interfere.

The method of securing the tune-plate to the bar *d* is very convenient. The bar *d* is first simply turned up, the plate, of a suitable size, is secured thereto by the insertion of the screw *h* into the corresponding opening, and by then turning down the bar *d* upon the plate *f* the tune-plate is at once brought to the proper position for playing.

It will be understood that instead of securing the screw-spindle *h* of the tune-plate to a bar, such as *d*, it may be secured directly to the top plate *f*, as shown in Fig. 3, in which case the openings *i*, *i'*, and *i²* for the reception of the screw *h* are formed at the desired distances apart in the said top plate *f*. It will also be understood that instead of securing

the guide-rail *l* to the bar *d* said guide-rail may be fixed to the under side of the top plate *f* of the instrument and may be raised or lowered through a slot provided in that plate; or the guide-rail *l* may be secured to the top plate *f* in any other suitable manner. As regards the other guide-plate *k*, it is not essential that it should be secured to the plate *f* permanently, as it may also be removable, if preferred.

If desired, the rotary tune-plates may be operated through their edges, in which case these edges are suitably toothed and thrown into gear with another toothed wheel. The plates adapted for rectilinear motion may similarly be toothed along their longitudinal edges and operated by suitable gearing.

The following modification (illustrated in Figs. 4 and 5 of the accompanying drawings) may also be applied to the above-described instrument. The bar *d* carries a movable carriage *d'*, having an opening provided with threads, into which the screw *h* is screwed.

In using tune-plates of different sizes the carriage *d'* is correspondingly displaced on the bar *d* and fixed in its position by any suitable device. The larger the employed tune-plates the more the axis of revolution *h*, carried by the carriage, will be distant from the toothed wheel *g*.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a mechanical music-box, the combination, with a casing, of a hinged bar, a screw held in said bar and forming the pivot for a circular music-sheet, and means for holding said screw on said bar at different lengths from the ends of the bar, substantially as set forth.

2. The combination, with a music-box mechanism and casing, of a hinged rail on the top of the casing, which hinged rail is provided with a number of screw-apertures, a pivot adapted to be screwed into said apertures, and a music-sheet adapted to rotate on said pivot, substantially as set forth.

3. In a musical box, the combination, with a music-producing mechanism and casing, of a hinged bar on the top of the casing, an adjustable pivot secured on said bar, and a guide-piece hinged to the top of said bar and extending transversely over the same, substantially as set forth.

4. In a musical box, the combination, with a music-producing mechanism, of a casing, a toothed wheel in said casing, and a music-sheet having a row of apertures adapted to receive the teeth of said toothed wheel, substantially as set forth.

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

OSKAR PAUL LOCHMANN.

Witnesses:

CARL BORNGRAEBER,

ERNST LOCHMANN.