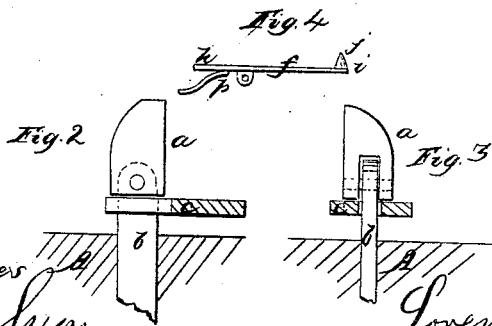
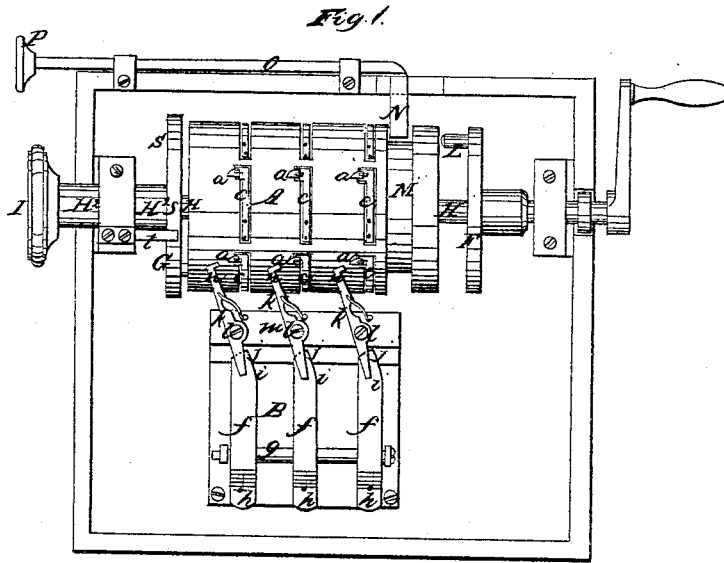


*L. Marques,*

*Musical Instrument*

*N<sup>o</sup> 53375.*

*Patented Mar 20, 1866.*



Witnesses  
Jm E Lyon  
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# UNITED STATES PATENT OFFICE.

LORENZO MARQUES, OF MEDELLIN, UNITED STATES OF COLOMBIA, AS-SIGNOR TO J. J. RIBON AND J. M. MUNOZ, OF NEW YORK, N. Y.

## IMPROVEMENT IN MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. 53,375, dated March 20, 1866.

*To all whom it may concern:*

Be it known that I, LORENZO MARQUES, of Medellin, in the United States of Colombia, have invented new and useful Improvements in Musical Instruments; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The present invention relates to that class of musical instruments, commonly known as "music-boxes" or "organs," in which a cylinder provided with a series of teeth upon and around its periphery is used; and it consists in a novel arrangement of the said teeth upon the cylinder, whereby they can be thrown into or out of the plane of the ordinary "comb," so called, of the music-box or organ, and thus the cylinder adapted to play any tune or piece of music within its scope; and also in so arranging a key-board in connection with the organ or box cylinder that the setting of the teeth, as above stated, can be accomplished with readiness and dispatch, and, as it were, automatically, by simply depressing the proper ones of the keys and at the proper times, while at the same time the cylinder is revolved, as will be hereinafter more fully described.

In the accompanying plates of drawings my improvements are illustrated, Figure 1 being a plan or top view of the box or organ cylinder, showing a portion of a key-board in connection therewith for setting its teeth; Figs. 2 and 3, enlarged views of one of the cylinder teeth, Fig. 2 showing the tooth in front elevation, and Fig. 3 in side elevation; and Fig. 4, a side view of one of the keys detached from the key-board.

Similar letters of reference indicate like parts.

A in the drawings represents a cylinder or barrel, made of the ordinary material used therefor, and precisely similar in its construction to the cylinder now in use in music-boxes and organs, and also is to be similarly arranged within the box or organ in respect to its comb, so called, and its operating parts or devices, except so far as it may be necessary to change such arrangement in order to accommodate the parts embraced by the present in-

vention. Upon this cylinder, as in ordinary music organs or boxes, a series of teeth, *a a a*, are arranged, consisting of any desired number, but which I prefer to arrange in a series of parallel concentric rows about and around the periphery of the cylinder, in order to adapt them to the operation of the keys of the key-board, as will be presently explained.

In lieu of simply driving these teeth *a* into the cylinder, as hitherto, I form them of or about the shape shown enlarged in Figs. 2 and 3 of the drawings, and so swivel or hinge them to fixed pins or studs *b* of the cylinder that they can be either swung down so as to lie flat upon or turned up so as to be vertical or project from the cylinder, so that as the cylinder is revolved such of the teeth as are swung down will not, while those turned up will, abut against the teeth of the comb in corresponding planes therewith, in each case springs *c c* being attached to the cylinder and properly arranged with regard to the teeth *a a* to firmly hold them in either one or the other of their two positions, as the case may be, and yet allow of their movement above explained.

From the above description of the manner in which I arrange the teeth upon the organ or box cylinder it is obvious that they can be adjusted so that any desired tune within the scope of the cylinder may be played; but to facilitate such adjustment thereof, and to enable it to be accomplished with readiness, ease, and dispatch, and in a simple manner, I have arranged, in connection with the cylinder, a key-board, B, having a series of keys, *f f f*, the form of each of which is shown in Fig. 4 in side elevation, which keys are each hung on a fulcrum or center pin, *g*, of the key-board, so that by depressing the outer ends, *h*, of the keys their inner or nearer ends, *i*, to the cylinder will be raised, and thus, through the pyramidal-shaped knobs or lugs *j* on such ends, swing the horizontal spring lever-arms *k* (turning upon fulcrums at *l* of the flange-bar or rail *m* of the box) in the proper direction to cause their ends *n*, bearing upon or in close proximity to the periphery of the cylinder between the concentric rows of teeth thereon, to abut against such ones of the said teeth as are upon the right-hand side of the said lever-arms *k* and throw them up from the cylinder into a vertical position, the keys, after being

depressed, as above explained, being immediately thrown back to their original position the moment the fingers are lifted from them by bent springs *p*, properly arranged in connection therewith, leaving the teeth of the cylinder raised by their depression, as explained, upright or standing. The number of keys upon this key-board are of course to correspond to the number of concentric rows of teeth upon the cylinder, one key for each row, which number is to be either more or less according to the scope which is given to the organ or box for playing tunes or pieces of music, and upon each key is to be marked or indicated in some distinct and intelligible manner, as by the method shown in the drawings in Fig. 1, the note of the music-staff which it is intended to represent.

When the cylinder-teeth are operated upon by the keys of the key-board, as above explained, the cylinder is thrown out of connection with the propulsive mechanism of the box or organ, which in this case, for illustration, is supposed to be at the end *E* of the cylinder, and into connection at its other end with the disk or wheel *G*, loosely hung upon the center axis or shaft, *H*, of the cylinder, to which wheel *G*, and surrounding the said shaft for a portion of its length, projecting through one side of the box, is fixed a sleeve, *H*<sup>2</sup>, having a milled head, *I*, upon its outer end for convenience in turning it, the cylinder, when thrown into connection with the disk or head *G*, as explained, turning in conjunction therewith as it is revolved. On the edge or periphery of this disk or head *G* a series of notches, *s s s*, are made, which are to extend entirely around the same, the distance between each of which notches is to correspond to the length of the shortest note that is to be produced by the organ or music-box—as, for instance, to a semi-quaver—or, in other words, to a one-sixteenth note—and the teeth in each concentric row of the cylinder are to be placed so as to correspond therewith, so that, for instance, if it is desired to set the teeth of the cylinder corresponding to any given key of the key-board to cause a note to be produced by the instrument equal in length to a semi-quaver or any other note of a longer duration, it is only necessary while such key is depressed to turn the said cylinder a sufficient distance that the notches of the disk *G*, passing under the holding spring-pawl *t* of the box or organ engaging with them, will correspond to the number of semi-quavers contained in the length of note to be produced, thereby setting up a corresponding number of the cylinder-teeth, so that the tooth of the comb in line

therewith will cause the desired length of sound to be given by the instrument.

After such teeth of the cylinder have been set as correspond to the notes of the piece of music which it is desired the music-box or organ shall play, in the manner above explained, the cylinder is then thrown into connection with the propulsive mechanism of the box or organ by moving it upon its center shaft or axis toward the disk *F*, interlocking with the face-pin or stud *L* thereof, when the music-box is in readiness to be set in motion, the operation then being the same as in the ordinary music-boxes or organs.

To move the cylinder forward and backward on its center shaft for the purpose described, *I* form a channel or groove, *M*, entirely around it, and at one of its ends, with which interlocks the right-angular arm *N* of a slide-bar, *O*, of the box-frame, having a milled head, *P*, for convenience in moving it, the operation of which upon the cylinder is obvious, without any further explanation herein, by an inspection of the drawings.

From the above description of my arrangement for adjusting the various teeth of the music organ or box cylinder it is obvious that the teeth of the cylinder can be readily, easily, and with dispatch set so as to have the box or organ play any tune desired within the scope of its cylinder, and, furthermore, that the arrangement and principles of its operations are such as to render it capable of being understood and worked even by persons of ordinary musical talent, which is of great importance for its practical and general use.

I claim as new and desire to secure by Letters Patent—

1. So arranging or hanging the teeth upon the cylinder of a music organ or box that they can be either turned up or down, substantially in the manner and for the purpose described.

2. In combination with the above, so arranging a series of keys in connection with the teeth of the cylinder that by depressing any one or more of the keys the teeth corresponding thereto upon the said cylinder will be turned up thereby, the number of which teeth so turned up being regulated by the length of rotation imparted to the cylinder while such keys are depressed, substantially as described, and for the purpose specified.

The above specification of my invention signed by me this 9th day of October, 1865.

LORENZO MARQUES.

Witnesses:

ALBERT W. BROWN,  
M. M. LIVINGSTON.