

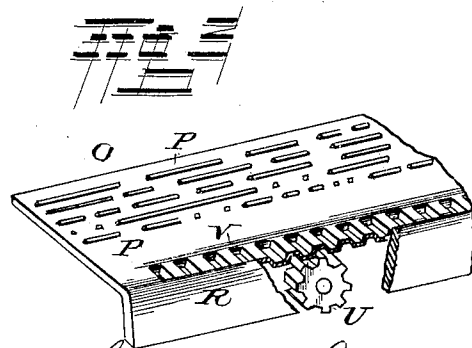
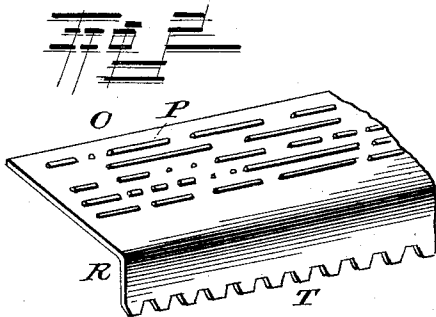
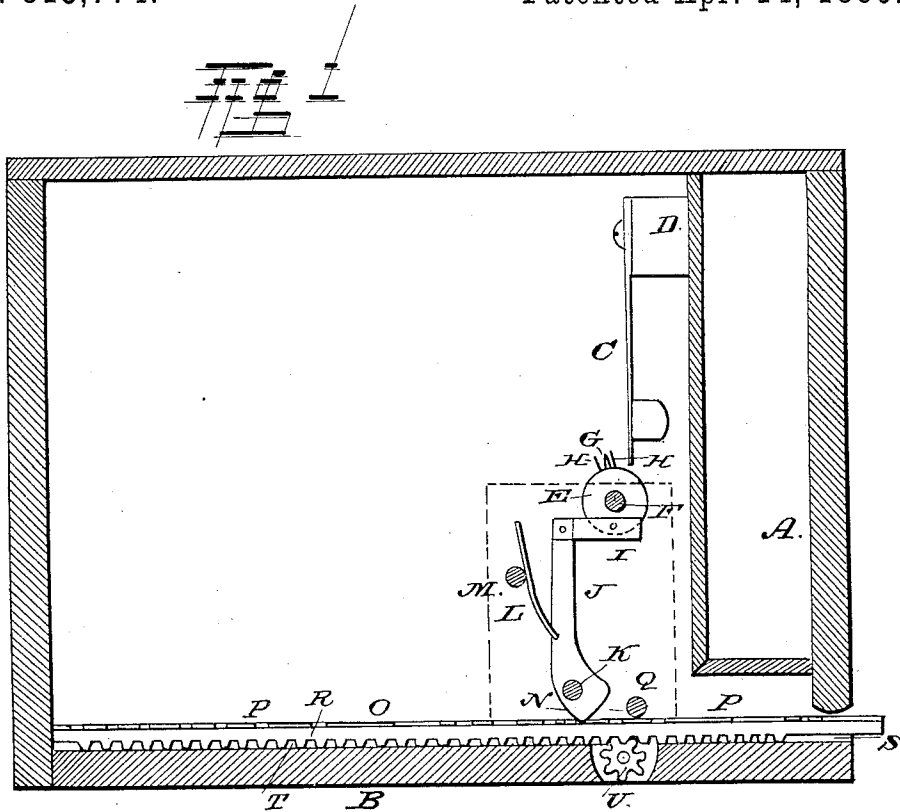
(No Model.)

G. B. HAKINS.

MECHANICAL MUSICAL INSTRUMENT.

No. 315,774.

Patented Apr. 14, 1885.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE B. HAKINS, OF NORWOOD, NEW YORK, ASSIGNOR OF ONE-HALF
TO HENRY G. PERT, OF SAME PLACE.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 315,774, dated April 14, 1885.

Application filed March 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. HAKINS, a citizen of the United States, and a resident of Norwood, in the county of St. Lawrence and State of New York, have invented certain new and useful Improvements in Musical Instruments; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a vertical cross-sectional view of a music-box provided with my improvements. Fig. 2 is a perspective view of a portion of the metallic operating-plate, and Fig. 3 is a similar view of a slight modification of the same.

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

My invention has relation to self-playing musical instruments, and more especially to instruments having a series of tuned teeth, or a so-called "comb of teeth;" and it consists in the improved construction and combination of parts of the picking mechanism, and of a sheet actuating the said picking mechanism, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the sounding board or box of the instrument, which is shown placed in an upright position in the drawings, but which may be placed in any suitable position, and B indicates the bed plate or bottom of the instrument. C is the comb or series of tuned teeth, the upper end of which is secured upon a bridle, D, secured to the sounding-board, and a disk, E, is pivoted upon a rod, F, below the end of each tooth, having upon its periphery a projecting picker-tooth, G, and two bristles, H, one upon each side of the tooth. A connecting rod or bar, I, is pivoted or hinged at one end upon the face of the disk near the lower edge of the same, and is pivoted at its other end to the upper end of a lever, J, which is pivoted upon a rod or bar, K, and has upon its forward edge an upwardly-inclined spring, L, the upper end of which bears against a stud, M, forcing the lever back into its original position when it is tilted. The lower end of the

lever is beveled at its forward edge, as shown at N, and is adapted to bear against the upper surface of the inflexible metallic music-sheet O, which travels upon the bed-plate of the instrument, and has a number of rows or projections upon its upper surface, as shown at P, which are struck up from its under side, which engage the lower beveled end of the lever, tilting the same, which causes the connecting-bar to rock the picker-disk, which again picks or strikes the corresponding tooth with the picker-tooth, the bristles serving to stop the vibrations of the tooth after it has been struck by the picker. A roller, Q, is journaled to the rear of the lower end of the lever, of which there is a number, corresponding to the number of teeth in the comb, each lever having its connecting-bar and picker-disk, and bears against the upper surface of the traveling sheet, serving to guide it and to keep it from tilting, and one edge of the sheet is bent down at a right angle to the remaining portion of the sheet, forming a flange, R, which fits into and travels in a longitudinal groove, S, in the bed plate or bottom of the instrument. This flange may be cut out to form a rack, T, which is engaged by a pinion, U, which is secured upon the drive-shaft; or the flange may be smooth and a rack struck up in the sheet inside the flange, as shown at V in Fig. 3, the sheet being propelled by the revolution of the drive-shaft, and tilting the levers by means of its projections, producing notes from the comb corresponding in tone and length to the position and length of the projections. It will be further observed that by this mechanism a note is struck whenever the lever is tilted in either direction, so that by properly adjusting the lever the picker-disk can also be actuated by a sheet of the proper thickness bearing depressions or perforations, into which the lower end of the lever would drop as the sheet was propelled forward, instead of being actuated by the projections, as above described, the time of the note then depending upon the frequency and length of the depression or perforation.

It follows that the operating mechanism may also be used for self-playing reed or similar wind instruments, the picker-teeth operating

upon keys instead of upon teeth, or upon
 stringed self-playing instruments, the pickers
 operating the keys, without departing from
 the spirit of my invention, although I prefer
 5 to use the improvements upon instruments
 having a comb of tuned teeth, they being es-
 pecially adapted for that purpose, which modi-
 fications are not shown in the drawings, inas-
 much as the only difference in the construc-
 10 tion is that what is now described as teeth in
 the specification would be keys.

Having thus described my invention, I claim
 and desire to secure by Letters Patent of the
 United States—

15 1. In a self-playing instrument having a
 comb of tuned teeth, the combination of a
 tooth with a rocking picker-disk having means
 for rocking it, and provided upon its periph-
 20 ery with a picker-tooth and with two bristles
 one upon each side of the tooth, as and for the
 purpose shown and set forth.

2. In a self-playing instrument, the combi-
 nation of a lever having a spring for return-
 ing it to its original position, and adapted to
 25 be tilted by projections, depressions, or per-
 forations upon a traveling sheet, a picker-disk
 having a picker-tooth, and two bristles upon
 the sides of the tooth, and a connecting-rod
 pivoted to the lever and to the picker-disk,
 30 and a toothed comb, as and for the purpose
 shown and set forth.

3. In a self-playing instrument, the combi-
 nation of a traveling sheet having rows of pro-
 jections, depressions, or perforations, a lever

pivoted above the sheet and having a spring 35
 projecting from its forward edge bearing with
 its upper end against a lug, a connecting-rod
 pivoted at one end to the upper end of the le-
 ver, and a picker-disk having a tooth upon its
 periphery, and having the other end of the 40
 connecting-rod pivoted upon its face near its
 lower edge, as and for the purpose shown and
 set forth.

4. In a self-playing instrument, the combi-
 nation of a revolving shaft having a pinion, an 45
 inflexible sheet having projections struck up
 from its upper surface, or depressions or per-
 forations made therein, having one edge bent
 at a right angle, and provided with a cogged
 rack integral with it engaging the pinion, a 50
 pivoted spring-actuated lever, a connecting-
 rod, and a rocking picker-disk, as and for the
 purpose shown and set forth.

5. A sheet for self-playing musical instru-
 ments, having projections, depressions, or per- 55
 forations upon its surface, having one edge
 bent at a right angle, and having a cogged
 rack struck up in it parallel with the bent
 edge, as and for the purpose shown and set
 forth. 60

In testimony that I claim the foregoing as
 my own I have hereunto affixed my signature
 in presence of two witnesses.

GEORGE B. HAKINS.

Witnesses:

GEORGE B. SHEPARD,
 FRANCES E. DUANE.