

(No Model.)

2 Sheets—Sheet 1.

F. E. P. EHRLICH.

MECHANICAL MUSICAL INSTRUMENT.

No. 338,496.

Patented Mar. 23, 1886.

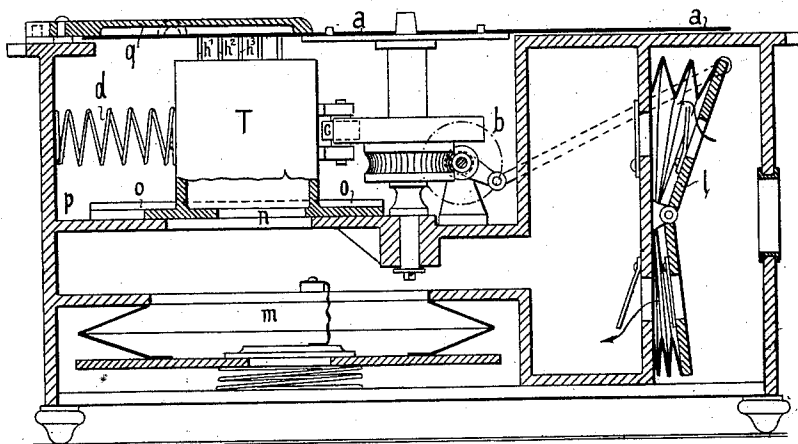


Fig. 2.

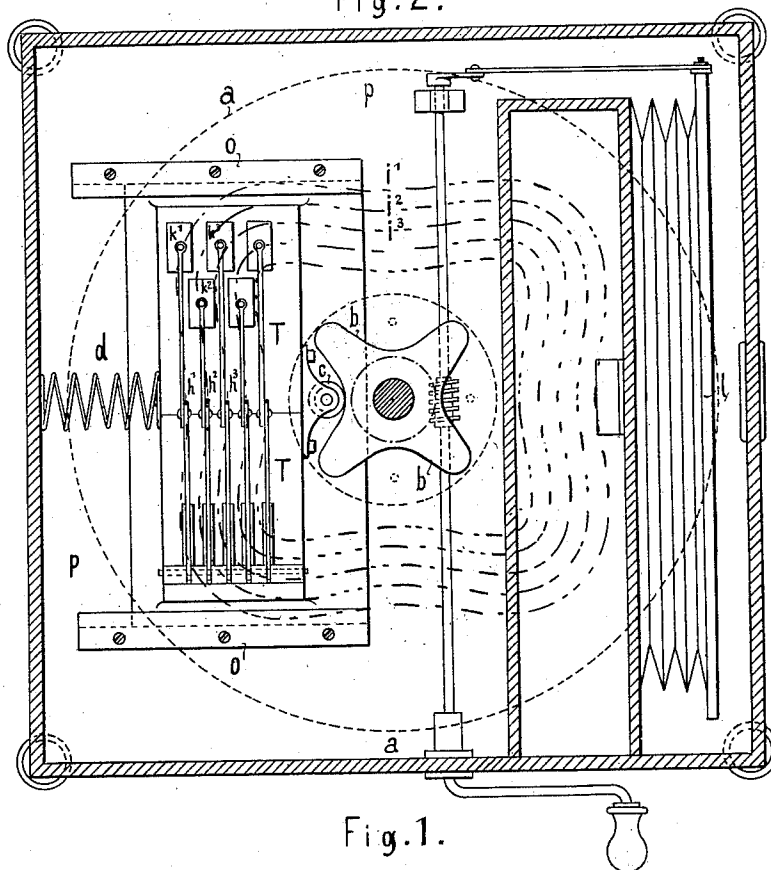


Fig. 1.

Witnesses:

E. A. Allen
J. Blandford

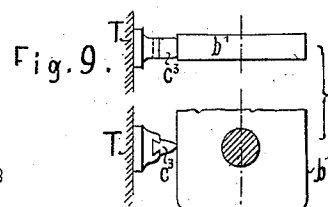
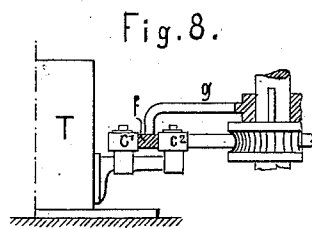
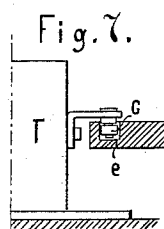
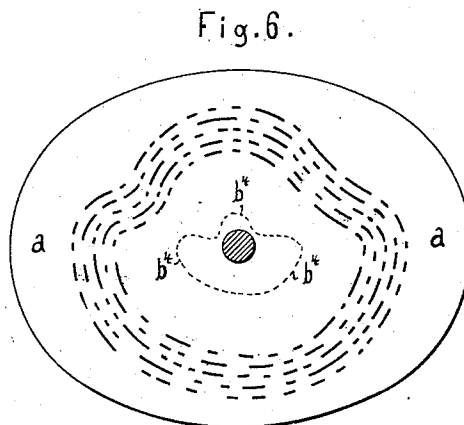
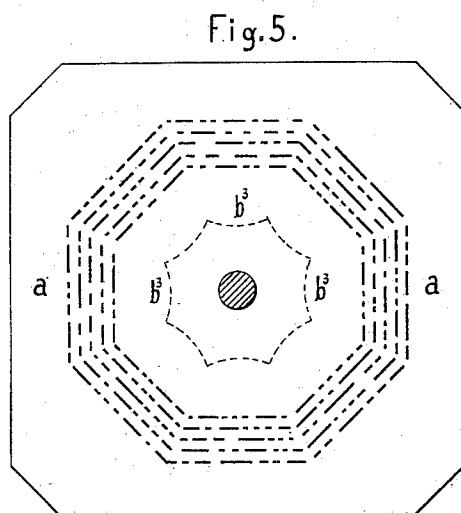
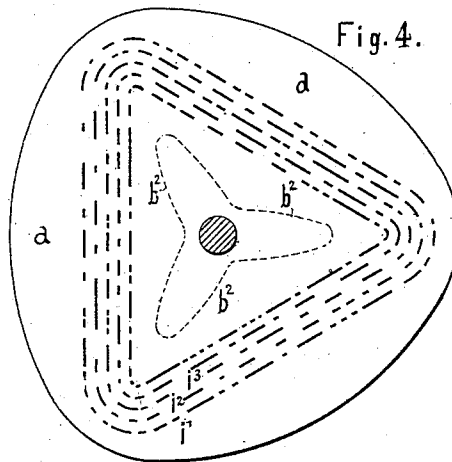
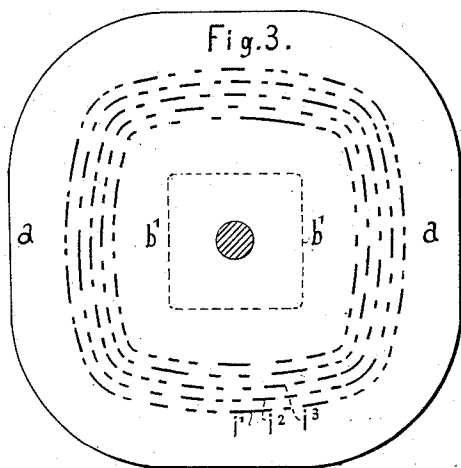
Inventor:
F. E. P. Ehrlich
by Marcelus Bailey
his Attorney.

F. E. P. EHRLICH.

MECHANICAL MUSICAL INSTRUMENT.

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Witnesses:
Edwin
J. Blandford

Inventor:
F. E. P. Ehrlich
by Marshall Bailey
his atty.

UNITED STATES PATENT OFFICE.

FRIEDRICH ERNST PAUL EHRLICH, OF GOHLIS, NEAR LEIPSIC, SAXONY,
GERMANY.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 338,496, dated March 23, 1886.

Application filed September 24, 1885. Serial No. 178,001. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH ERNST PAUL EHRLICH, a subject of the King of Saxony, and residing at Gohlis, near Leipsic, in the Kingdom of Saxony, German Empire, have invented a new and useful Improved Mechanical Musical Instrument with Movable Reed-Chamber for Music-Sheets of Different Forms, of which the following is a specification.

10 This invention relates to mechanical or automatic musical instruments which are caused to play pieces of music by alternately operating a system of keys or levers in connection with a reed-chamber by means of a music-sheet provided either with holes or with elevations and depressions corresponding with the order and duration of the notes; and it consists in providing means, as hereinafter described, whereby it is rendered possible to
20 employ music-sheets of any desired form. In order to obtain this result, the reed-chamber or part carrying the keys or levers operating the valves is so arranged as to be capable of moving, and is connected with a device whereby the requisite motion is obtained.

25 An essential part of this device consists of a guide or cam-shaped plate which corresponds with the form of the music-sheet in use and displaces the reed-chamber in such a manner as to cause the ends of the levers to coincide with the holes or elevations and depressions on the music-sheet. The term "form" or "shape" of the music-sheet applies, in this instance, not so much to the external configuration of the sheet as to the path or direction of the rows of holes or of the rows of elevations and depressions which are sometimes employed in place of holes.

30 In the example illustrated in Figures 1 and 2 of the accompanying drawings, which represent, respectively, a horizontal and a vertical section of a mechanical musical instrument constructed according to this invention, the lines or rows of holes in the music-sheet describe a peculiar curve, resembling a square with rounded corners and inwardly bent or curved sides. In this case the reed-chamber is operated by a species of cam or guide, *b*, resembling a cross with arms of equal length.

35 40 45 50 In the case of music-sheets with the lines of holes in the form illustrated in Fig. 3, it is

necessary, in order to shift the reed-chamber in such a manner that the holes may pass with precision over the noses of the levers, to use a cam in the form of a square with slightly rounded corners, as indicated in dotted lines at *b'*, Fig. 3. In like manner a music-sheet in which the lines of holes form a triangle, as in Fig. 4, or an octagon, as in Fig. 5, requires a cam or guide provided with arms or projections, as indicated by the dotted lines at *b''*, Fig. 4, and at *b'''*, Fig. 5, and a music-sheet in which the holes describe an irregular figure, as in Fig. 6, requires a similar irregularly-formed cam, as indicated at *b''''*.

60 65 The guide is constituted either by the outer edge or periphery of a plate, as indicated in Figs. 1 and 2, against which an anti-friction roller, *c*, on the reed-chamber is constantly pressed by a spring, *d*; or, as indicated in Fig. 7, the said guide may consist of a groove in which travels an anti-friction roller, *c*, attached to the reed-chamber; or, again, it may consist of a ring or a continuous rail, *f*, Fig. 8, carried by radial arms *g*, and working between two anti-friction rollers, *c'* *c''*. According to another arrangement, (illustrated in Fig. 9,) a blunt edge or point, *c'''*, may be substituted for the roller *c*.

80 85 90 The form of the guide or cam being selected according to that of a given music-sheet, or, conversely, the form of the music-sheet being selected according to the form of the guide, in such a manner that all the individual points on a given music-sheet, measured radially, are equidistant, or nearly so, from the cam, the position of the noses *h'* *h''* *h'''* of all the levers will invariably coincide with the curves *i'* *i''* *i'''*, and will be operated by meeting with the holes or the elevations and depressions as they present themselves in accordance with the tune to be played. The movement of the levers thus produced by the music-sheet alternately opens and closes the valves *k'* *k''* *k'''*.

95 100 The reed-chamber is arranged in the usual manner, the various compartments thereof being supplied with wind by a bellows, *l*, delivering the wind into a reservoir or accumulator, *m*, whence it proceeds through a sufficiently-wide opening, *n*, Fig. 2, into the reed-chamber *T*, which travels in guides *o*, forming an air-tight joint therewith upon a board or plat-

form, *p*. As the reed-chamber, not being rigidly attached to the sides of the wind chest or casing, changes its position relatively to the sides of the wind-chest, the arm *g*, which supports the music-sheet *a* by counteracting the upward springy pressure of the levers *h' h'' h'''*, is provided with a longitudinal groove.

I claim as my invention—

A mechanical or automatic musical instrument in which the reed-chamber *T* is made movable and is caused to change its position relatively to the casing of the instrument in

accordance with the form of the music-sheet *a* by means of a cam-shaped device, *b b' b''*, the latter being arranged to correspond with the form of the music-sheet, substantially as set forth. 15

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

FRIEDRICH ERNST PAUL EHRLICH.

Witnesses:

CARL AUG. BECK,
C. BOONGRAEBER.