(No Model.) 2 Sheets—Sheet 1.

M. HAUSCHILD.

MECHANICAL MUSICAL INSTRUMENT.

No. 531,933. Patented Jan. 1, 1895.

Fig. 1

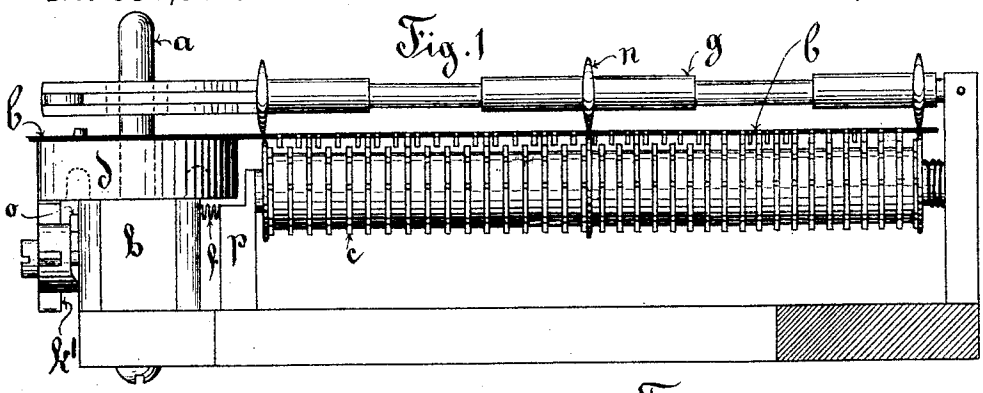


Fig. 2

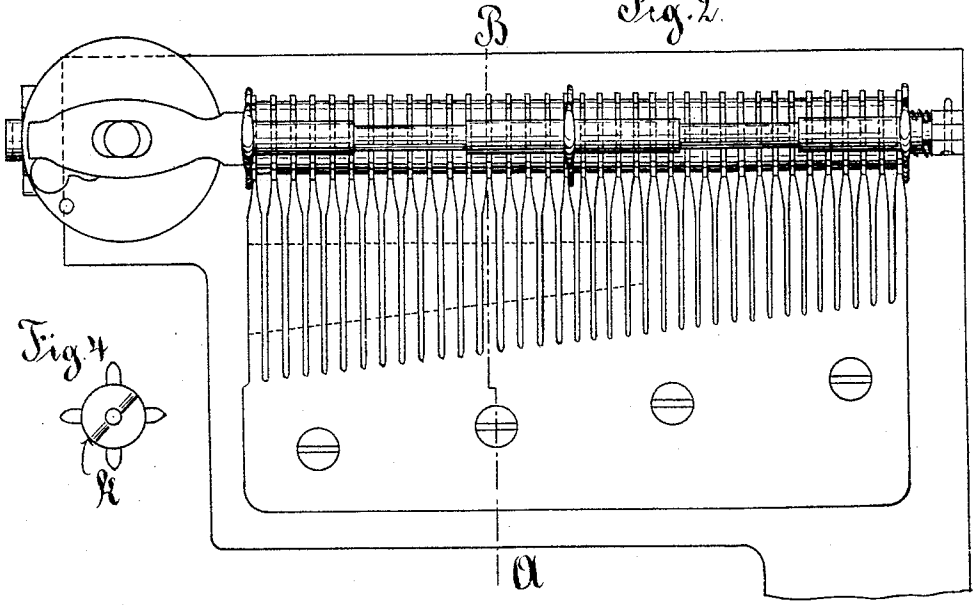


Fig. 4

Fig. 3

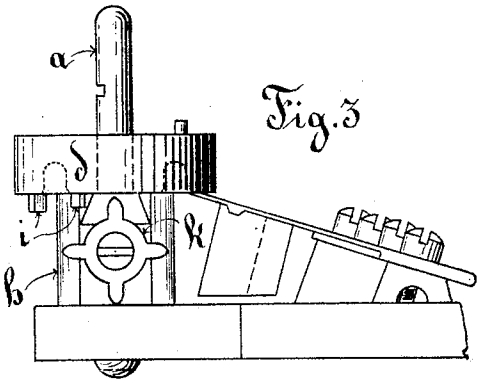
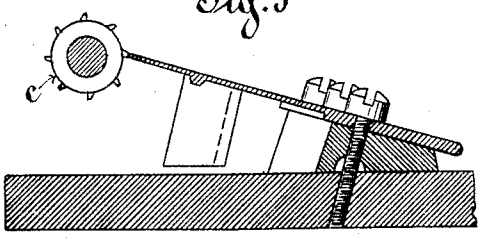


Fig. 5



Witnesses
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(No Model.) 2 Sheets—Sheet 2.

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MECHANICAL MUSICAL INSTRUMENT.

No. 531,933. Patented Jan. 1, 1895.

Fig. 8

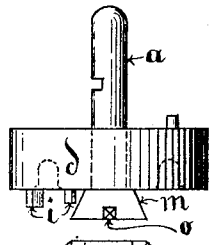


Fig. 9

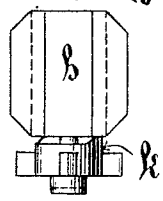


Fig. 6

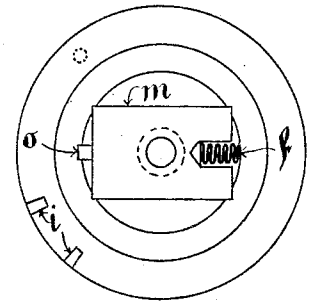


Fig. 7

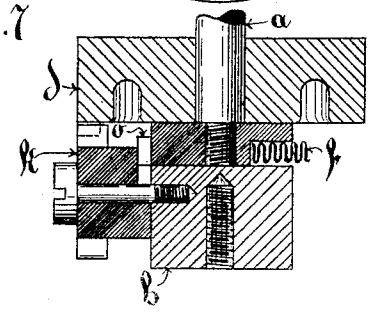


Fig. 10

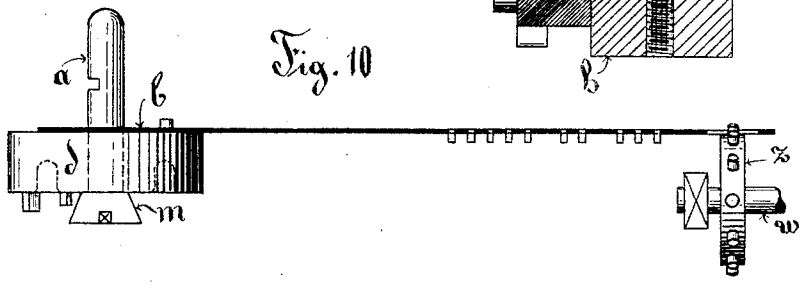
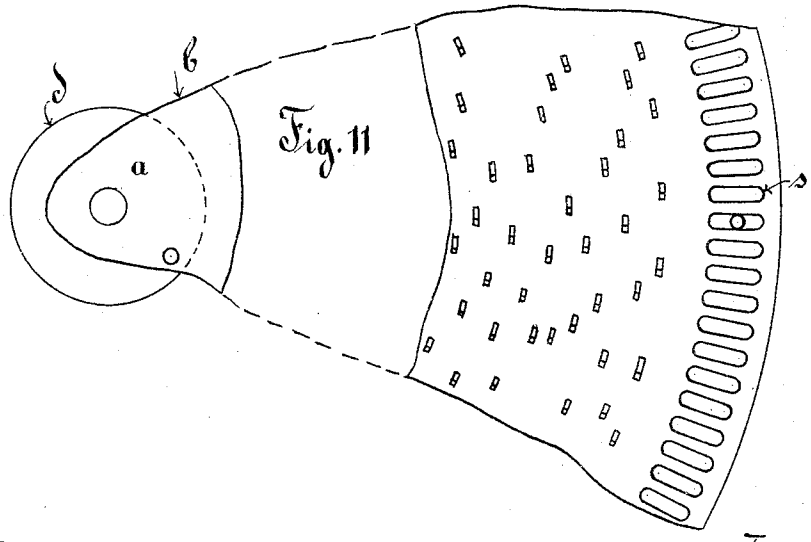


Fig. 11



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UNITED STATES PATENT OFFICE.

MAX HAUSCHILD, OF LEIPSIC, ASSIGNOR TO RICHARD JENTZSCH, OF RADIS, GERMANY.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 531,933, dated January 1, 1895.

Application filed July 30, 1894. Serial No. 518,946. (No model.) Patented in Germany May 2, 1893, No. 75,865, and in England June 11, 1894, No. 11,349.

To all whom it may concern:

Be it known that I, MAX HAUSCHILD, a subject of the King of Saxony, and residing at Leipsic, in the Kingdom of Saxony, Germany, have invented certain new and useful Improvements in or Relating to Mechanical Musical Instruments, (for which Letters Patent have been granted in Germany, No. 75,865, dated May 2, 1893, and in Great Britain, provisionally, No. 11,349, dated June 11, 1894,) of which the following is a specification.

This invention relates to that class of mechanical musical instruments in which the various tone sounding devices are placed at different radial distances from a center about which revolves the music sheet which by its circular tracks of perforations or the like causes the desired notes to be emitted; and the object of the invention is to improve the mechanism controlling the motion of the music sheet in such a way that the latter continues to operate during more than one revolution without necessary repetition of the music already played.

Reference being made to the annexed drawings, Figure 1 is a sectional elevation showing the invention applied to a musical instrument in which the tones are derived from the vibrations of the prongs of a comb (omitted in Fig. 1) operated by rotation of pin wheels controlled by the music sheet. Fig. 2 is a plan view thereof the music sheet being removed. Fig. 3 is a side elevation from the left of Fig. 1. Fig. 4 is a detail view of part of the mechanism. Fig. 5 is a cross section on line A, B, Fig. 2. Figs. 6 to 11 are detail views.

The music sheet *b* (Fig. 11) is provided with suitable slots arranged in a number of concentric circular tracks in the well known manner, one track corresponding to each tone producer; but to enable the said music sheet to play more lengthy pieces of music or several pieces, I arrange between each of the usual concentric tracks and the next, other tracks either one or more according to the space afforded, which additional tracks will be without influence in the tone producers during the first revolution of the music sheet but will enter into action to the exclusion of those formerly in action at the end of the first revolution by the displacement of the center of rotation of the music sheet. This displacement takes place at the end of each revolution and is in the same direction so long as additional music slot tracks are to be placed in action, whereafter the music sheet center returns to its initial position. The construction whereby this displacement is effected is as follows, the mechanism as illustrated being for one displacement back and forth only.

The music sheet is carried at its center on a disk *d* with which it engages by pins in the latter passing through the music sheet in the well known way. The disk *d* revolves on a pin *a* which does not revolve but is carried by a prismatic block *m* adapted to slide horizontally in a base *h* in a direction to and from the tone producers. A spring *f* bearing on one end of the slide *m* and counter bearing on the pillar *p* tends to press the slide *m* away from the tone producers, but its movement is limited by the abutment of a stud *o* on the other end of the slide *m* against the lateral face of a rotary cam *k*. The periphery of this cam is in the form of a spur wheel with teeth *k'* which are in the path of teeth *i* on the under side of the disk *d* so that at each revolution of the disk *d* the cam K is given a sudden part revolution. The amount of this part revolution is equivalent to the number of displacements in one direction and the back of the cam is divided into a similar number of segmental planes of different elevations, each being eased to the next by an inclined plane. Thus one revolution of the cam gives successive sudden displacements in one direction, or one displacement only, followed by a reversion to the first position. The stud *o* following the elevations of the cam is similarly displaced and with it the slide *m*, pin *a*, disk *d* and music sheet *b*.

To provide for the revolving of the music sheet without interference from the displacement, the sheet is revolved by rotation of a spur wheel Z on a shaft *w* (Fig. 10), the spurs of this wheel engaging in radial slots S in or near the periphery of the music sheet (Fig. 11) the slots being of sufficient length to permit of the displacement of center in the manner aforesaid.

I claim as my invention in mechanical musical instruments—

1. The combination with a series of sound producers of a music sheet having a number of concentric tracks of operators adapted to actuate said producers, said number being a multiple of the number of sound producers, means for rotating said sheet about its center and means for displacing said center during each revolution for the purpose set forth.

2. The combination with a rotary music sheet, of a rotary disk engaging said sheet and concentric therewith, a pin traversing the axis of said sheet and disk, a prismatic guiding block carrying said pin, a spring adapted to displace said block, a rotary cam having elevations at different planes adapted to abut said block, spur teeth on said cam and spur teeth on said rotary disk for the purpose set forth.

3. The combination of a rotary music sheet having a series of slots each extending radially from the center of rotation of sheet, a support for the center thereof, means for displacing said support in the plane of the music sheet and a rotary spur wheel adapted to engage said series of slots and to rotate the sheet substantially as set forth.

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

MAX HAUSCHILD.

Witnesses:
RUDOLPH FRICKE,
RICHARD JENTZSCH.