(No Model.) 2 Sheets—Sheet 1.

W. O. SPAETHE.

MECHANICAL MUSICAL INSTRUMENT.

No. 457,445. Patented Aug. 11, 1891.

Fig. 1.

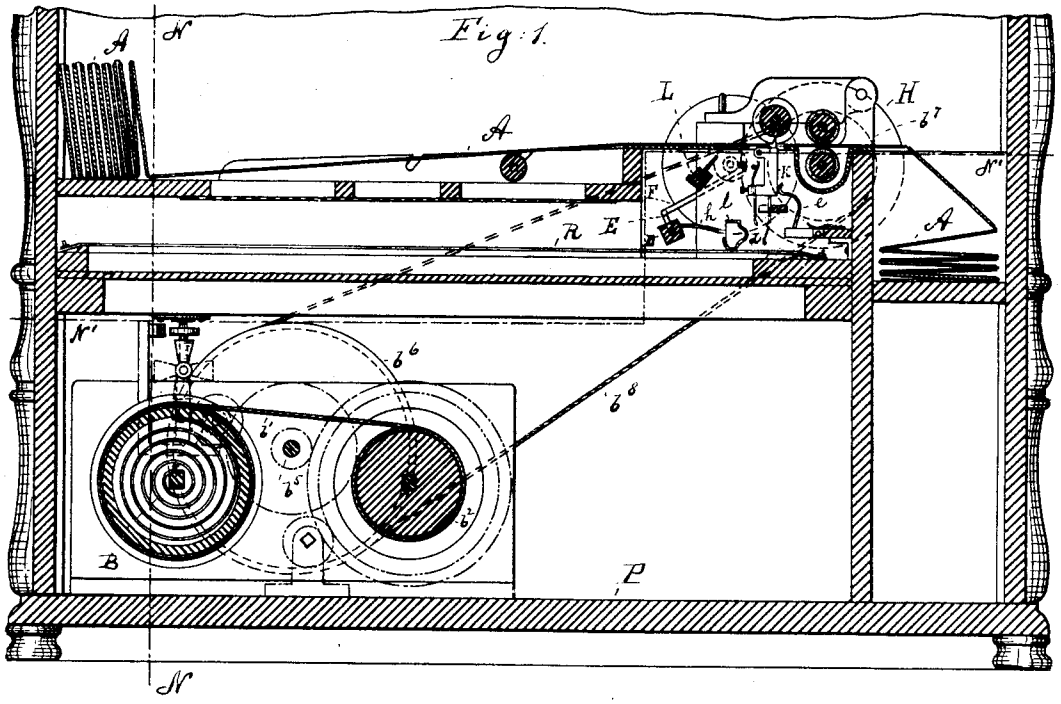
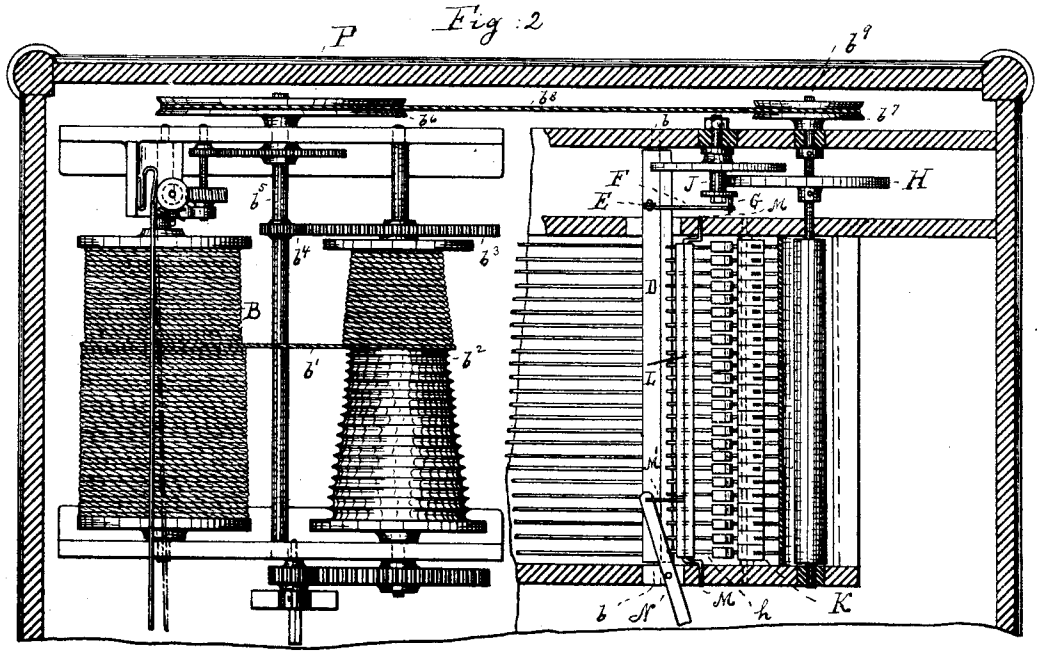


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3

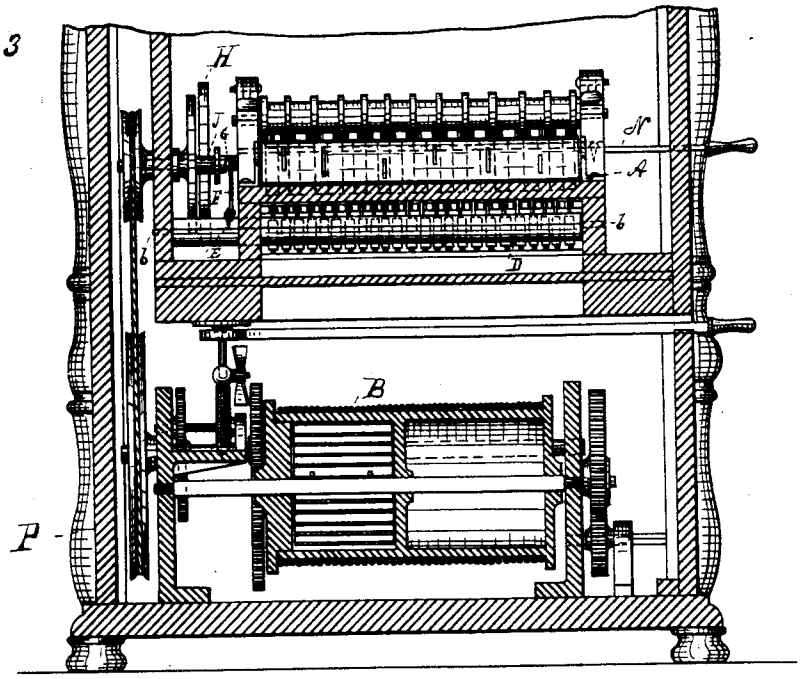


Fig. 4

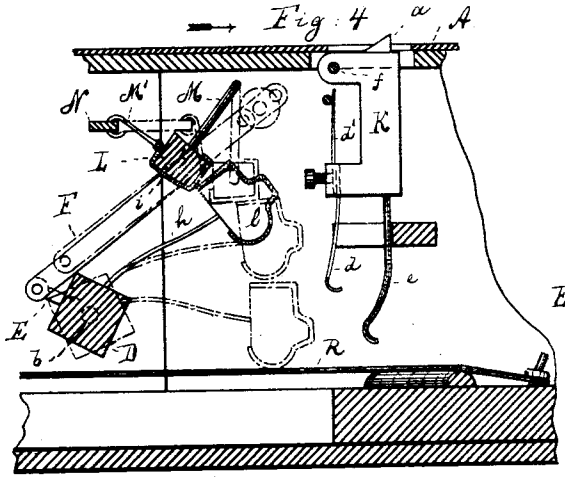
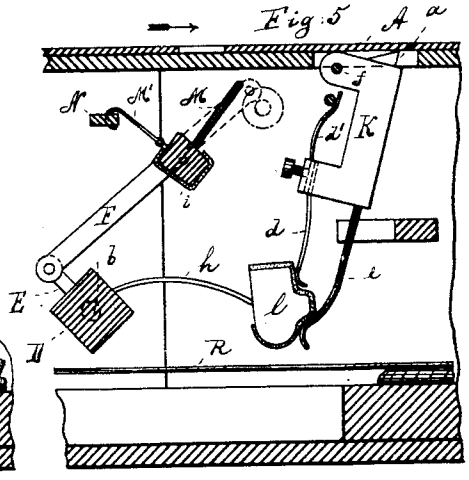


Fig. 5



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UNITED STATES PATENT OFFICE.

WILHELM OTTO SPAETHE, OF GERA, GERMANY.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 457,445, dated August 11, 1891.

Application filed October 27, 1890. Serial No. 369,450. (No model.)

To all whom it may concern:

Be it known that I, WILHELM OTTO SPAETHE, a subject of the German Emperor, and a resident of Gera, in Germany, have invented a new and useful Improvement in Mechanical Musical Instruments, of which the following is a specification.

This invention relates to a mechanical musical instrument in which a series of spring-hammers are attached to a common rock-shaft. The perforated music-sheet operates a stop that holds the heads of those hammers back that are not to strike, while the other hammers are carried along by the rock-shaft and strike the strings.

The invention consists in the various features of improvement, more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of my improved musical instrument; Fig. 2, a horizontal section on line N′ N′, Fig. 1; Fig. 3, a cross-section on line N N, Fig. 1; Fig. 4, a sectional elevation of the action, with the hammer released; Fig. 5, a similar view with the hammer held back.

The letter P represents the casing of my improved mechanical musical instrument.

A is the perforated music-sheet, fed over the action, as usual.

l l are the heads of the hammers secured to the spring-shanks *h*, which are in turn secured to a rock-shaft D. The shaft D turns on its trunnions *b* and receives its motion from the spring-drum B. Motion is transmitted from drum B by rope *b′* to drum b^2. Drum b^2 by gearing b^3 b^4, Fig. 2, drives shaft b^5, that in turn, by pulleys b^6, b^7, and belt b^8, turns shaft b^9, carrying gear-wheel H. The gear-wheel H engages pinion J of a crank-axle G. This crank-axle rocks shaft D by means of the two intermediate pivoted rods F E.

K is a stop pivoted at *f* beneath the line of travel of music-sheet A. This stop is provided on top with a nose *a* and at the bottom with two spring-arms *d e*. When the music-sheet bears upon the nose *a*, Fig. 5, the stop K is inclined, so that its arms *d e* hold the hammer-head down. In this position the hammer-head will not participate in the motion of rock-shaft D; but its spring-shank *h* will simply bend. When, however, a perforation of music-sheet A arrives over stop K, the nose *a* will be released, and a spring *d′* will throw the stop K into a vertical position. Fig. 4. Thus the arms *d e* will release their hold upon the hammer-head, and the latter will by the shaft D be carried along to strike the string R.

L is a damper-rail covered by felt *i* and pivoted to the frame P by crank-shaped pins M, Fig. 2. The rail L is by arm M′ connected to a hand-bar N. This hand-bar allows the damper-rail to be swung on its pins M, so as to be raised or lowered and check the upward motion of the hammers. In this way the throw of the hammers may be altered, and thus the volume of tone may be controlled.

What I claim is—

1. The combination of a rock-shaft D, with hammers secured thereto, and with pivoted stops K, having arms *d e*, that are adapted to engage the hammers, substantially as specified.

2. The combination of a rock-shaft D, with hammers secured thereto, stops for engaging the hammers, and with an adjustable damper-rail, substantially as specified.

3. The combination, in a mechanical musical instrument, of the following elements: a spring-drum, a rock-shaft receiving motion therefrom, hammers secured to the rock-shaft, stops for engaging the hammers, and an adjustable damper-rail, substantially as specified.

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

WILHELM OTTO SPAETHE.

Witnesses:
CARL SPOERL,
HERMANN OTTO.