

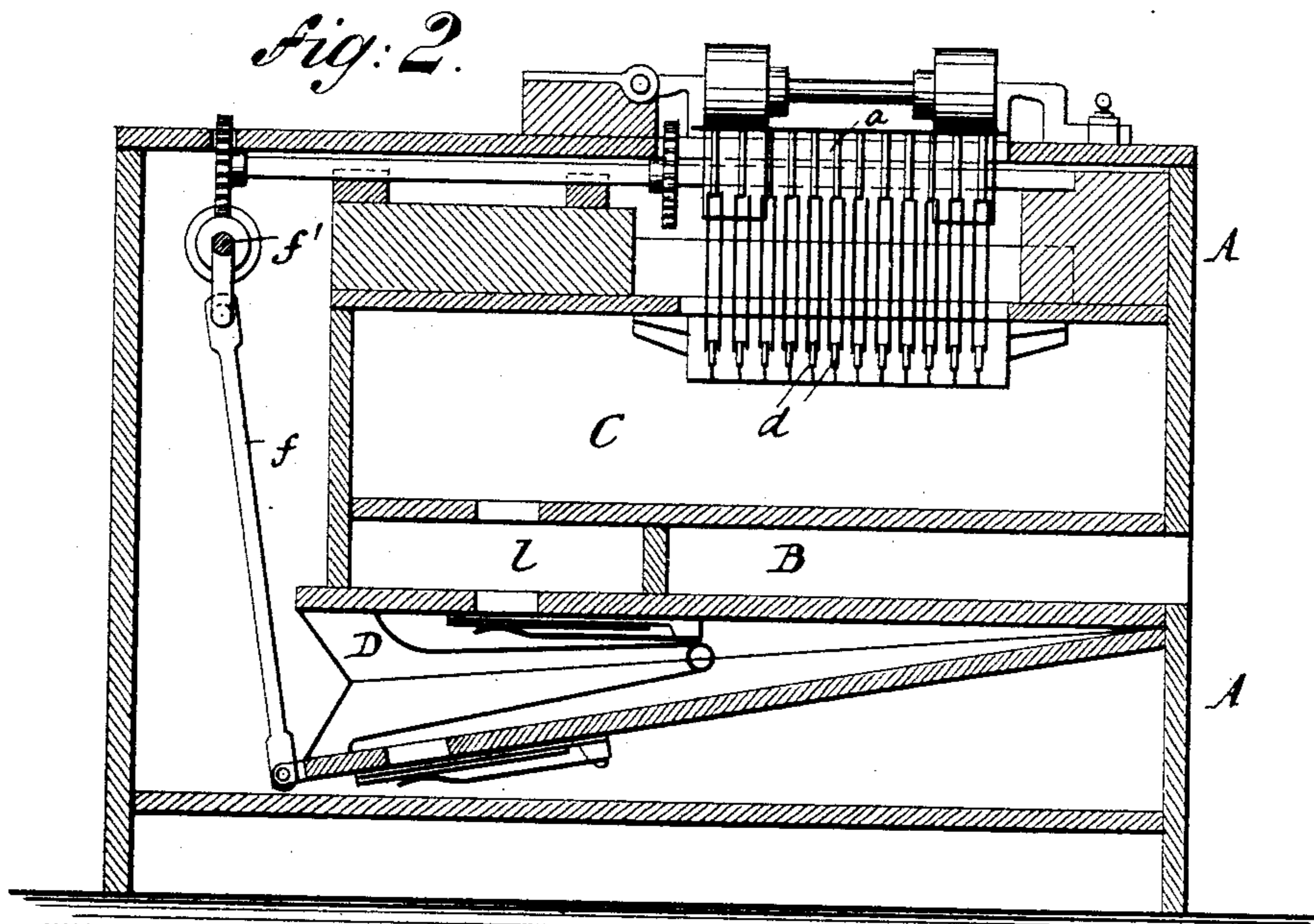
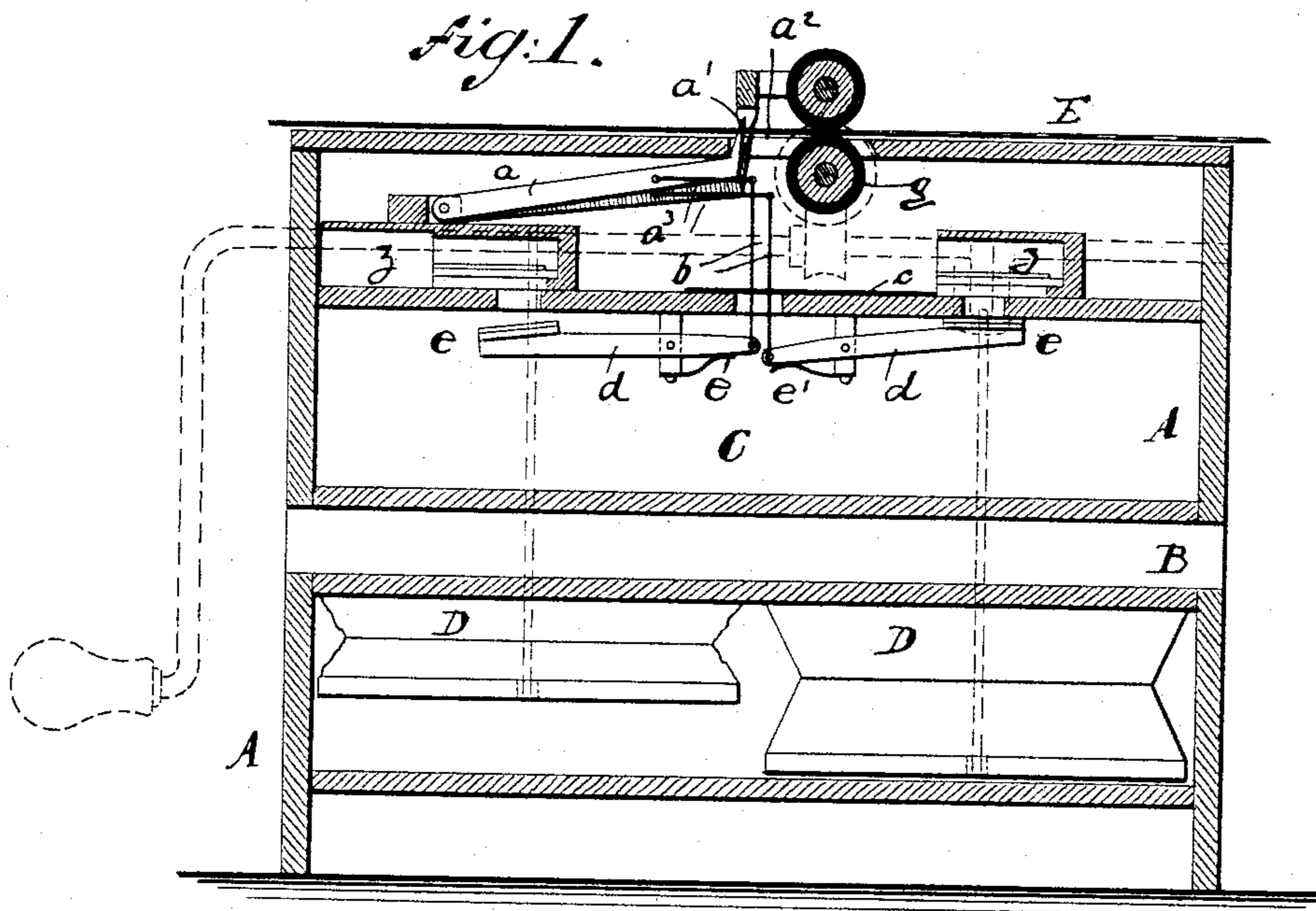
(No Model.)

3 Sheets—Sheet 1.

C. PIETSCHMANN.  
MECHANICAL MUSICAL INSTRUMENT.

No. 447,970.

Patented Mar. 10, 1891.



WITNESSES:  
*A. Lohr.*  
*Martin Petry.*

INVENTOR  
*Carl Pietschmann*  
BY *Joseph Paeguer*  
ATTORNEYS

(No Model.)

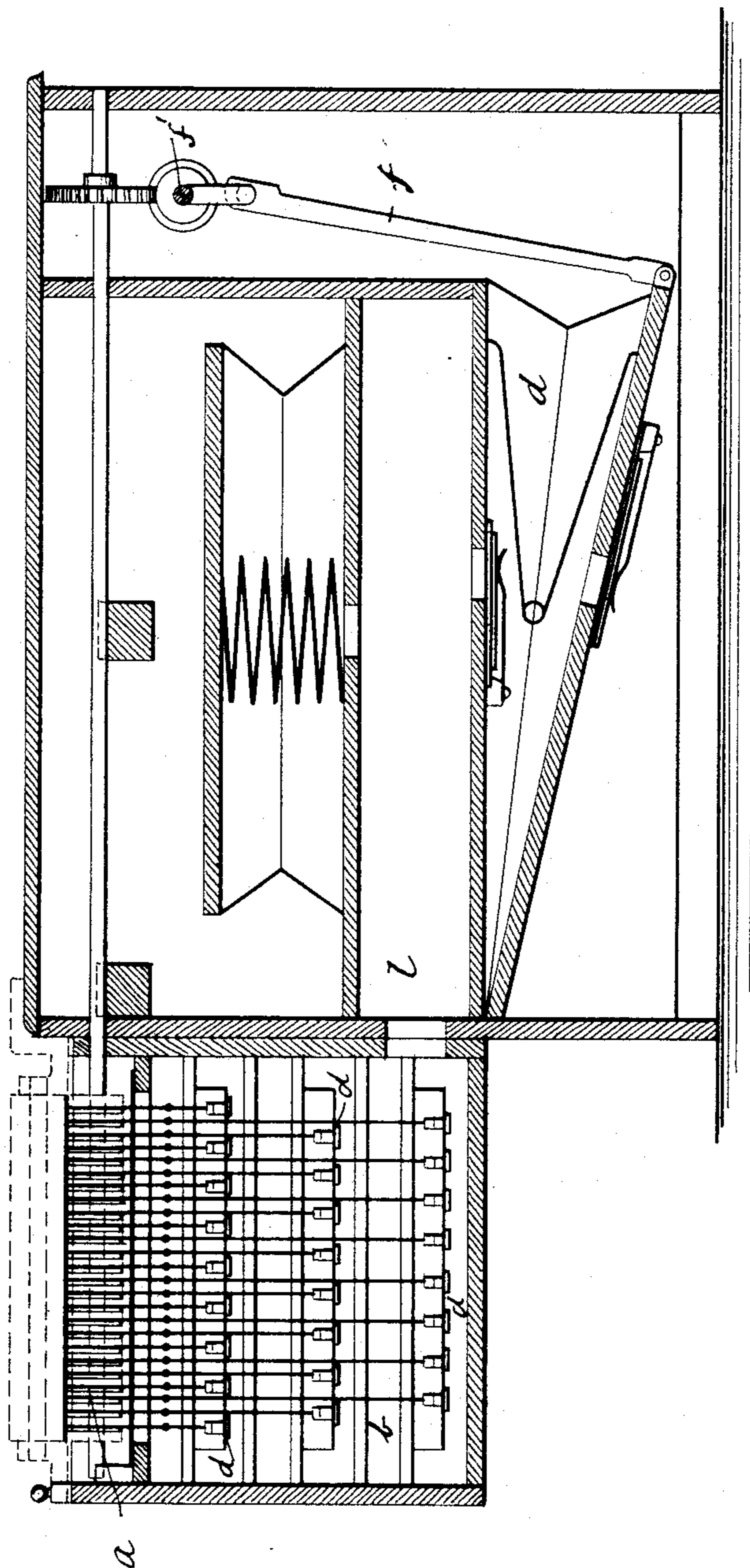
3 Sheets—Sheet 2.

C. PIETSCHMANN.  
MECHANICAL MUSICAL INSTRUMENT.

No. 447,970.

Patented Mar. 10, 1891.

Fig. 3.



WITNESSES:

A. Schehl.  
Martin Petry.

INVENTOR

Carl Pietschmann

BY

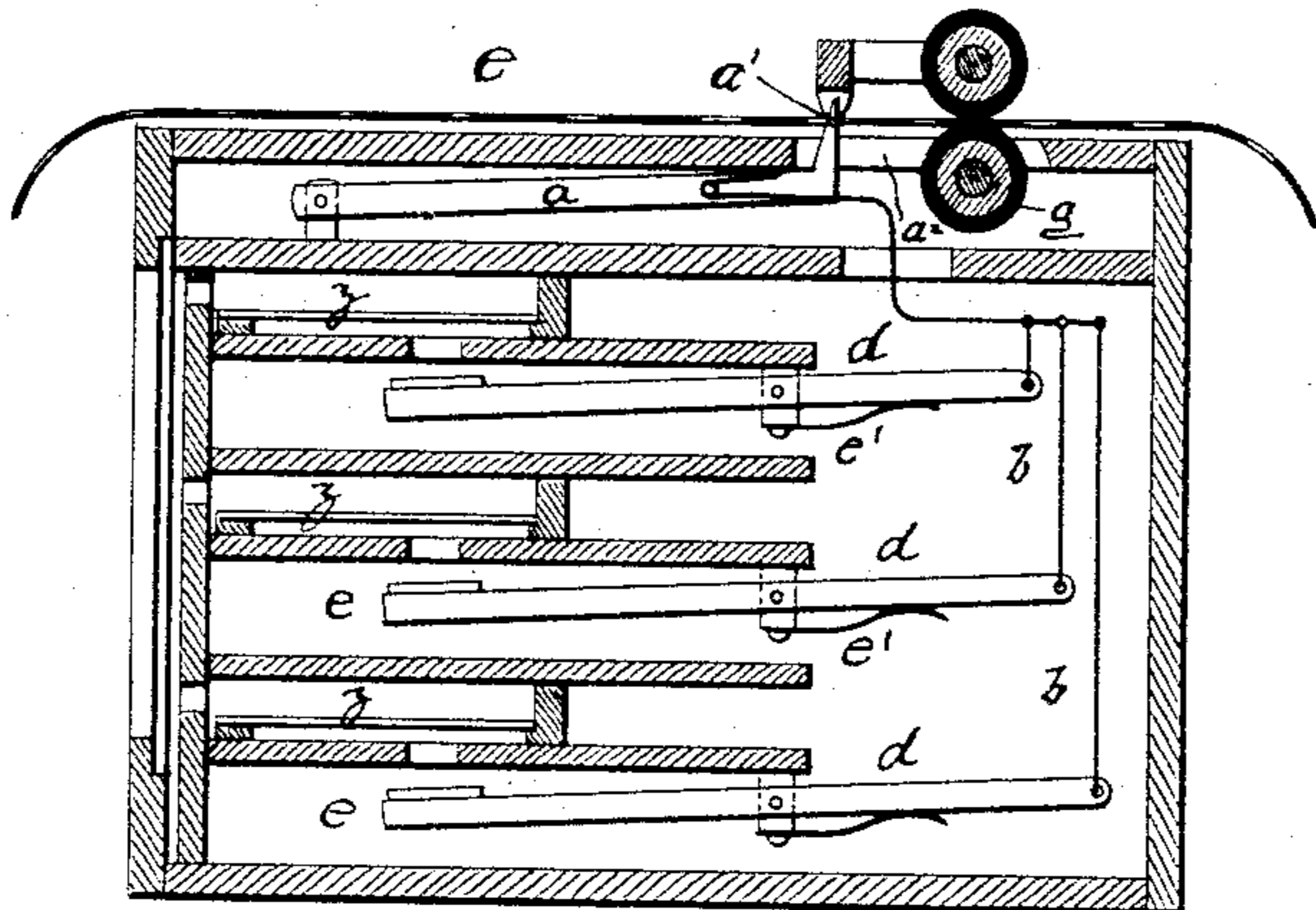
Goepfer Raegner  
ATTORNEYS.

C. PIETSCHMANN.  
MECHANICAL MUSICAL INSTRUMENT.

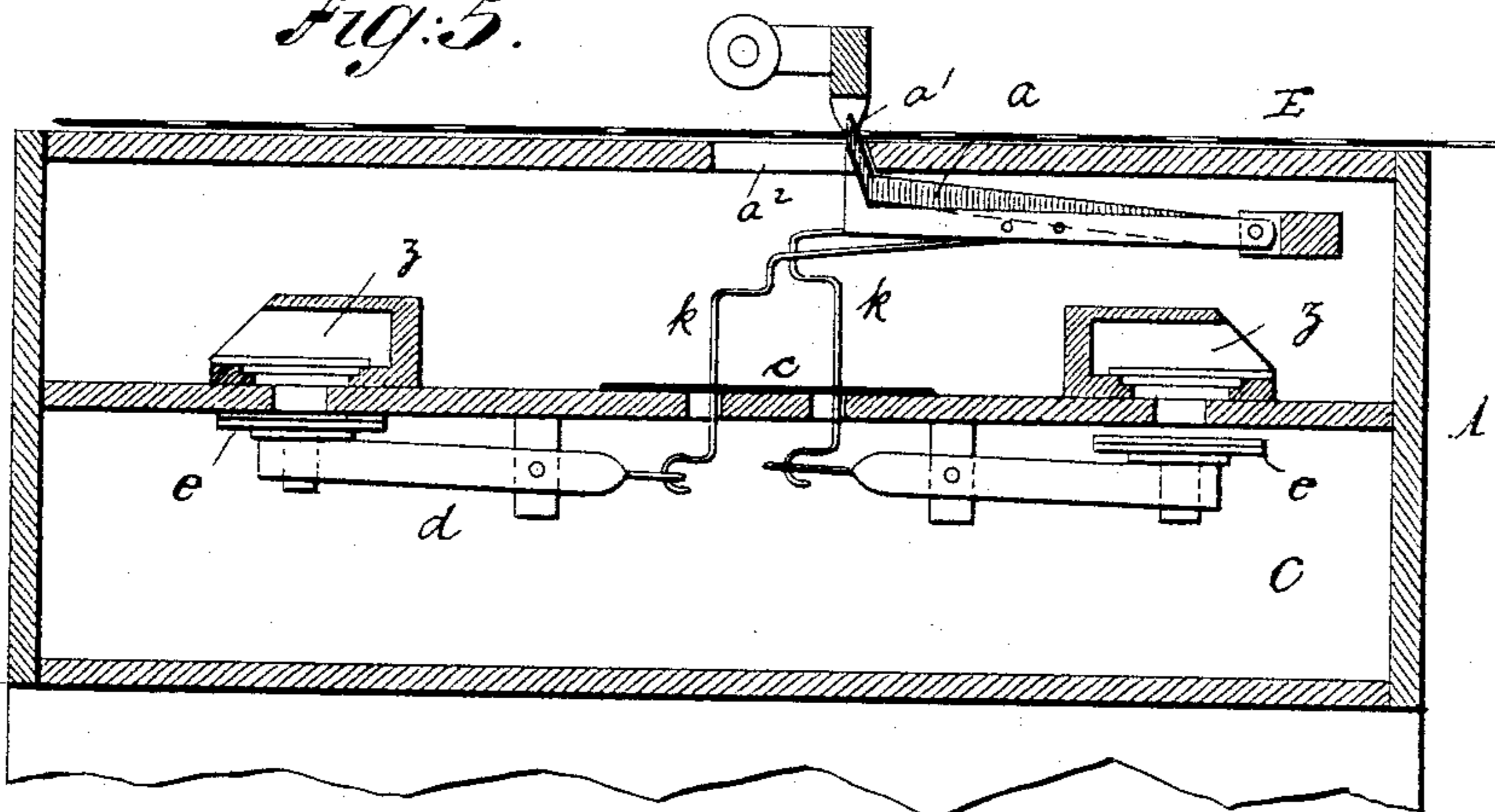
No. 447,970.

Patented Mar. 10, 1891.

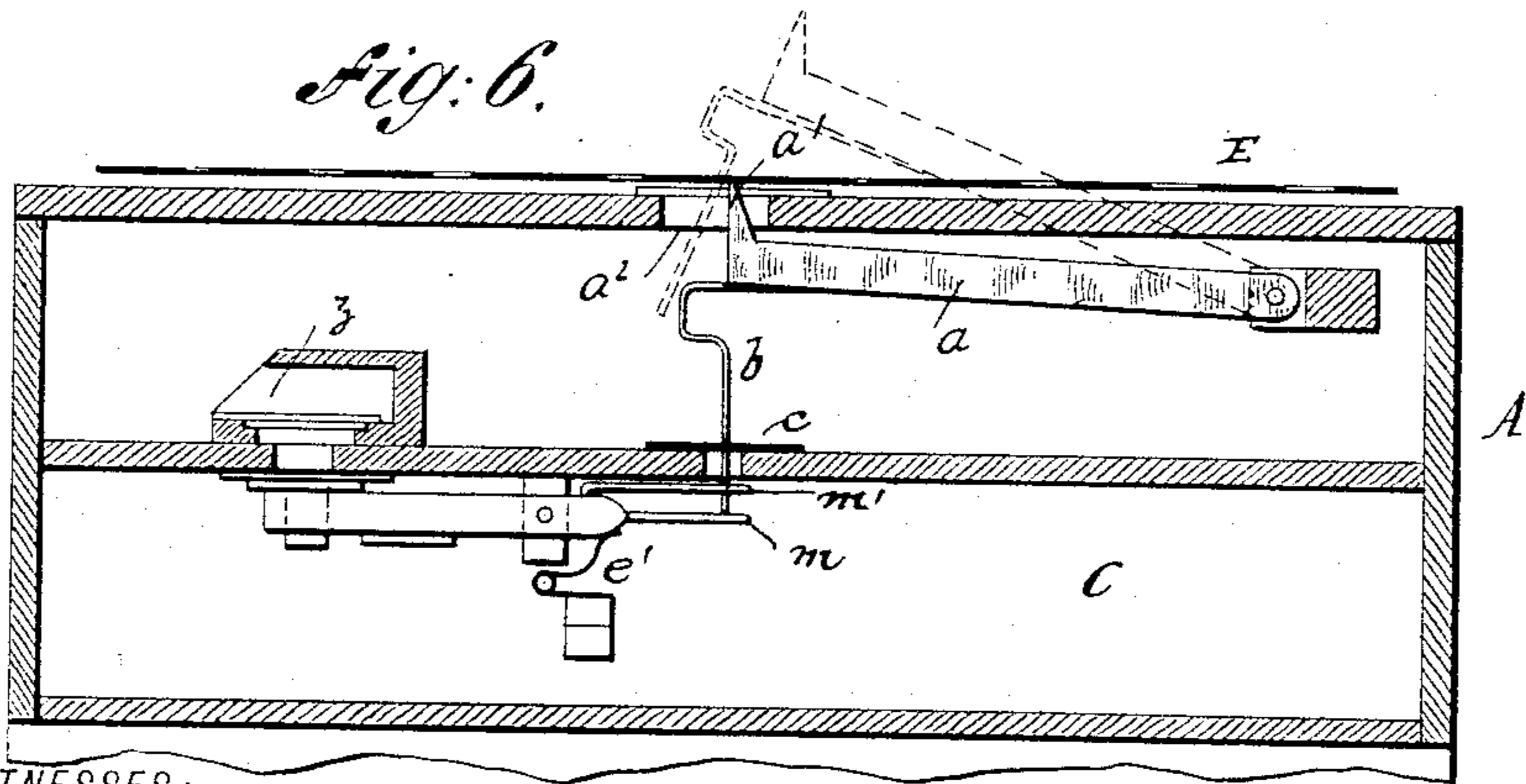
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



WITNESSES:

*A. Schuhl.*  
*Martin Petry.*

INVENTOR

*Carl Pietschmann*  
BY *Joseph R. Wagner*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

CARL PIETSCHMANN, OF PANKOW, NEAR BERLIN, ASSIGNOR TO THE BERLINER MUSIK INSTRUMENTEN FABRIK, AKTIEN GESELLSCHAFT, FORMERLY CHAS. F. PIETSCHMANN & SÖHNE, OF BERLIN, GERMANY.

## MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 447,970, dated March 10, 1891.

Application filed September 29, 1890. Serial No. 366,518. (No model.) Patented in Germany January 29, 1889, No. 50,193; in France February 9, 1889, No. 195,974; in England February 26, 1889, No. 3,395, and May 23, 1890, No. 8,097, and in Austria-Hungary August 26, 1889, No. 7,853 and No. 40,183.

*To all whom it may concern:*

Be it known that I, CARL PIETSCHMANN, of Pankow, near Berlin, Prussia, Germany, a citizen of the German Empire, have invented certain new and useful Improvements in Mechanical Musical Instruments, (for which I have obtained Letters Patent in Germany, No. 50,193, dated January 29, 1889; in England, No. 3,395, dated February 26, 1889, and No. 8,097, dated May 23, 1890; in France, No. 195,974, dated February 9, 1889, and in Austria-Hungary, No. 7,853 and No. 40,183, dated August 26, 1889, issued July 12, 1890,) of which the following is a specification.

This invention relates to improvements in that class of mechanical musical instruments in which the reeds are vibrated by suction and the valves of the reed-chambers are operated by a perforated sheet. Heretofore mechanical musical instruments have usually been provided with perforated music-sheets secured to rollers, the sheet being unwound from one roller upon the other. Endless music-sheets have also been used, but these necessitated complicated mechanism.

The object of my invention is to provide a mechanical musical instrument in which an endless music-sheet can be used, which instrument is simple in construction, can easily be operated, and easily adjusted.

The invention consists in the combination, with a suitable casing containing a vacuum-chamber and bellows connected therewith, of valves for closing openings leading from the vacuum-chamber to the reed-boxes, key-levers for operating said valves, and rods or wires passing from the key-levers through apertures in a suitable diaphragm to the valves.

The invention also consists in the construction and combination of parts and details, which will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical transverse sectional view of my improved mechanical musical instrument. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a vertical longitudinal sectional view of an instrument of this kind,

in which the valve mechanism is contained in a casing attached to the side of the vacuum-chamber. Fig. 4 is a transverse sectional view through the valve-casing, and Figs. 5 and 6 are detail sectional views showing modifications of the said mechanism.

Similar letters of reference indicate corresponding parts.

The endless music-sheet E that is used for operating the valve is shifted by means of a rubber-covered roller *g*, which is turned by means of a crank in the usual manner or by means of any other well-known mechanisms. The endless music-sheet E passes through a longitudinal opening B in the casing A of the instrument. The valves *e* for closing the openings in the reed-chambers *z* are secured to levers *d*, pivoted within a hermetically-closed chamber C, which is connected by chambers *l* with the suction-bellows D, arranged in the bottom of the casing A, and connected by rods *f* with a suitable crank-shaft *f'*, which is also used for turning the rollers *g*. On the valve-levers *d* the springs *e'* act and press upward those ends of the levers *d* opposite the ends carrying the valves *e*, thus tending to keep the valves open. A series of pivoted levers *a* are provided at their upper ends with toes *a'*, which project through an opening *a<sup>2</sup>* in the top of the casing A, upon which toes the music-sheet E can act. Each lever *a* is provided with an arm *a<sup>3</sup>*, connected by rods *b* with those ends of the levers *d* opposite to the ones carrying the valves *e*. To prevent any escape of air, the rods *b* pass through apertures in the diaphragm *c*, secured on the top of the vacuum-chamber C. When the slot or opening in the music-sheet E arrives at one of the toes *a'* of the levers *a*, said toe passes into a slot in the sheet and the corresponding spring *e'* presses upward that end of the corresponding lever *d* opposite to the one carrying the valve *e*, whereby the corresponding reed-box is brought into communication with the vacuum-chamber C, and the exterior air passing through the reed-box into the vacuum-chamber C vibrates the reed, thereby producing the required sound. The bellows D con-

stantly maintain an ordinary vacuum in the vacuum-chamber C as said chamber is connected with the bellows of the intermediate chambers *l*.

5 In the modification shown in Fig. 5 the springs *e'* are dispensed with and the levers *d* are connected with the levers *a* by spring-arms *k* passing through apertures in a diaphragm *c*. Ordinarily when the sheet E rests  
10 upon the toes *a'* of the levers *a* the spring-arms *k* are under sufficient spring-tension to keep the valves *e* closed. When one of the toes *a'* arrives at a slot in the sheet E, the corresponding lever *a* is forced upward by the  
15 spring-tension in the connecting spring-arm *k* and the valve is opened. This construction has the advantage over the construction shown in Figs. 1 and 2 that the springs for keeping the valves closed or for closing them  
20 can readily be adjusted without requiring the vacuum-chamber to be opened, as is necessary in the constructions shown in Figs. 1, 2, 3, and 4.

In the modification shown in Fig. 6 the  
25 springs *e'* are provided in the manner set forth previously, and the levers *d* are provided with a flat extension *m'*, upon which the lower ends of the wires *b* can rest loosely, said wires being adapted to pass through an aperture in the diaphragm *c* in the usual manner.  
30 The wires *b* also pass through a guide-eye *m*, formed on the end of an arm of the lever *d* for the purpose of guiding the lower ends of said wires *b* directly upon the plate or extension *m'*. The wires *b* are bent to give them  
35 spring-tension, and are not positively connected with the levers *d*. Whenever it is de-

sirable or necessary to adjust the valves or the motion of the same, all that is necessary is to remove the cover of the instrument and  
40 to adjust the spring-wires *b*.

Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

1. In a mechanical musical instrument, the  
45 combination, with a casing having a vacuum-chamber, a bellows-chamber below the same containing bellows for creating a vacuum in said vacuum-chamber, reeds above the vacuum-chamber, valves in said vacuum-chamber  
50 for closing the reed-boxes, and mechanism for operating said valves, which mechanism is adapted to be operated by a perforated music-sheet, said casing having an opening extending from end to end between the bellows-  
55 chamber and the vacuum-chamber, through which opening the endless music-sheet can pass, substantially as set forth.

2. The combination, with a casing having a vacuum-chamber, valve-levers in the vacuum-  
60 chamber, key-levers for operating the valve-levers and arranged above the vacuum-chamber, mechanism for operating the key-levers, detachable rods extending from the key-levers to the valve-levers and resting loosely on  
65 the same, and apertured diaphragms, through which said rods pass, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CARL PIETSCHMANN.

Witnesses:

W. WITTIG,

G. WINKELSTEIN.