

No. 755,572.

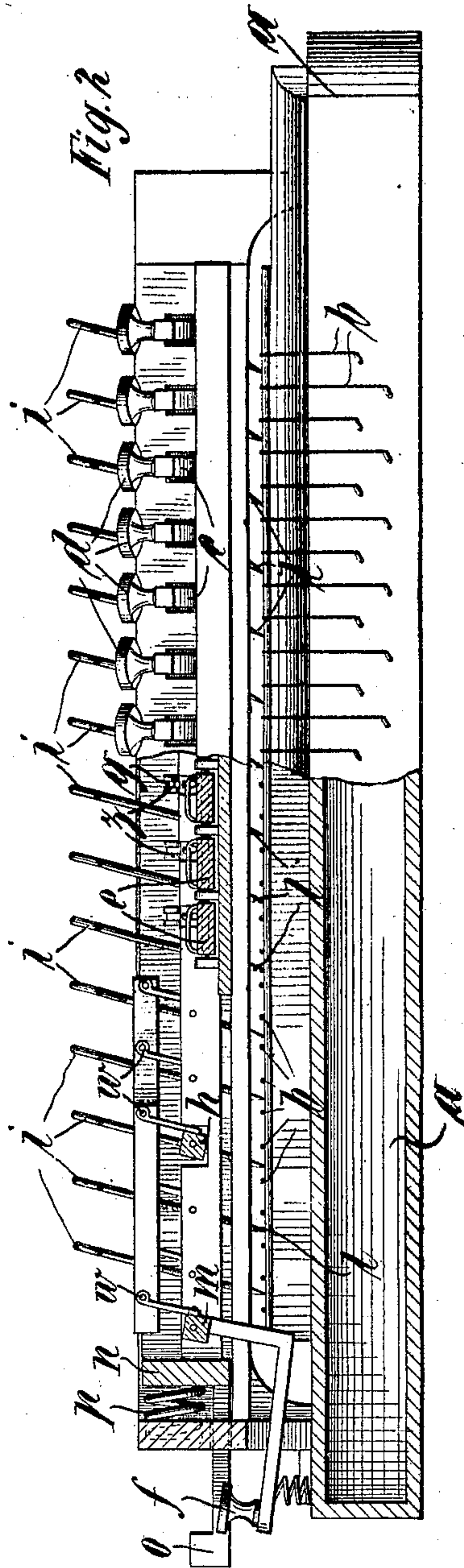
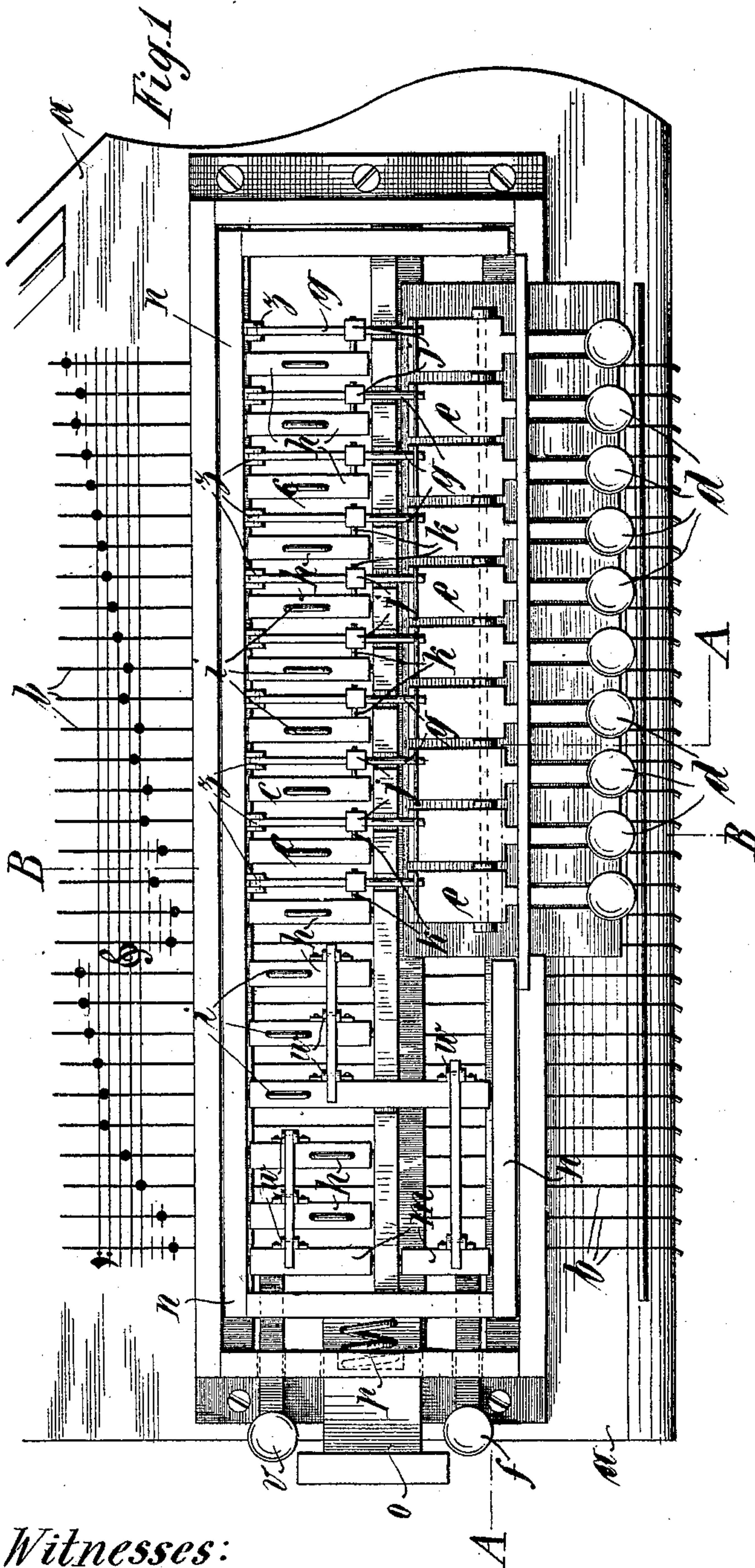
PATENTED MAR. 22, 1904.

R. GUMZ.  
ZITHER.

APPLICATION FILED JULY 17, 1900.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

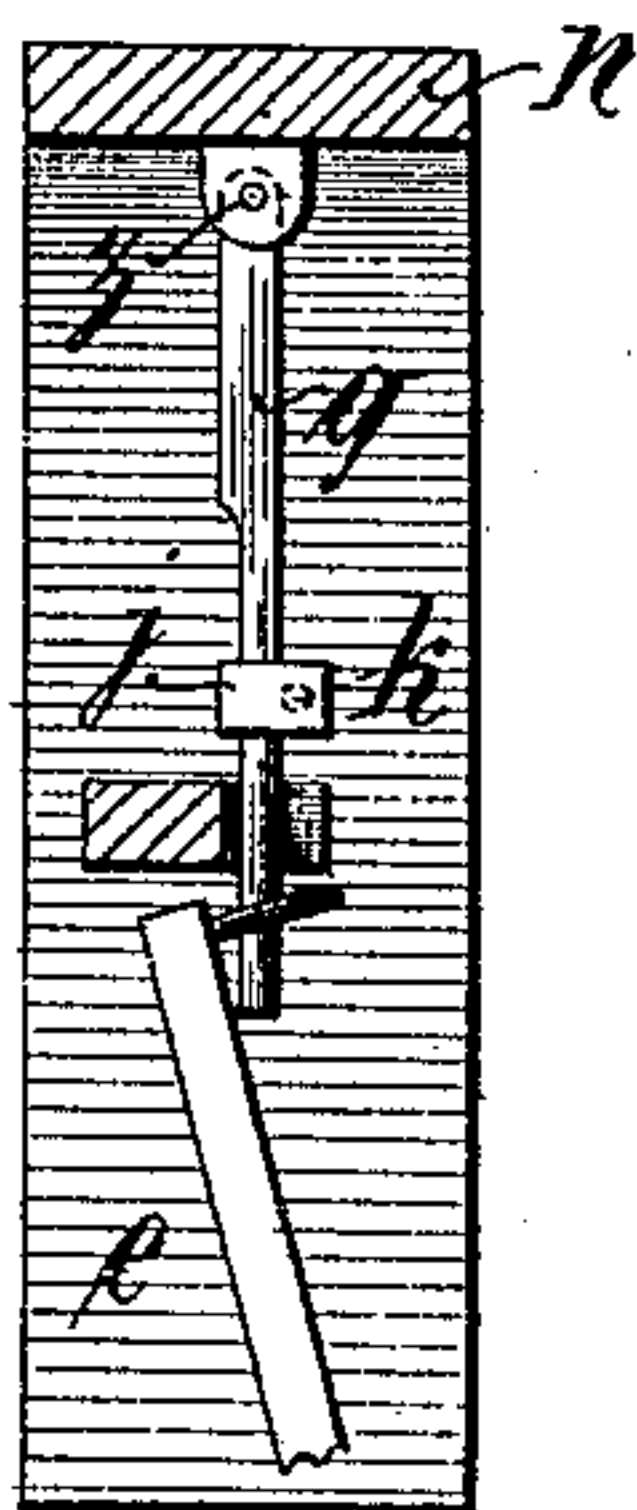


Fig. 5.

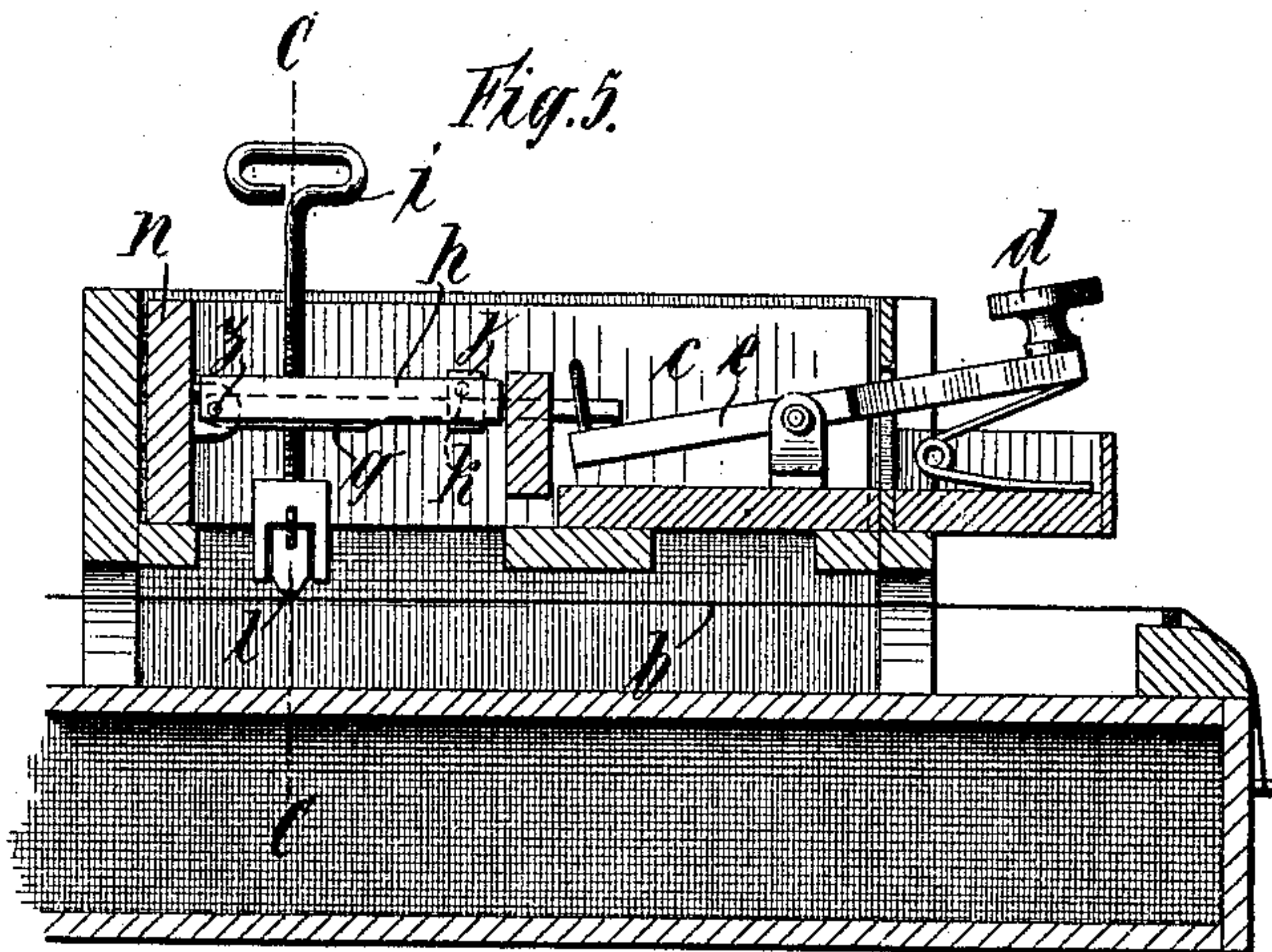
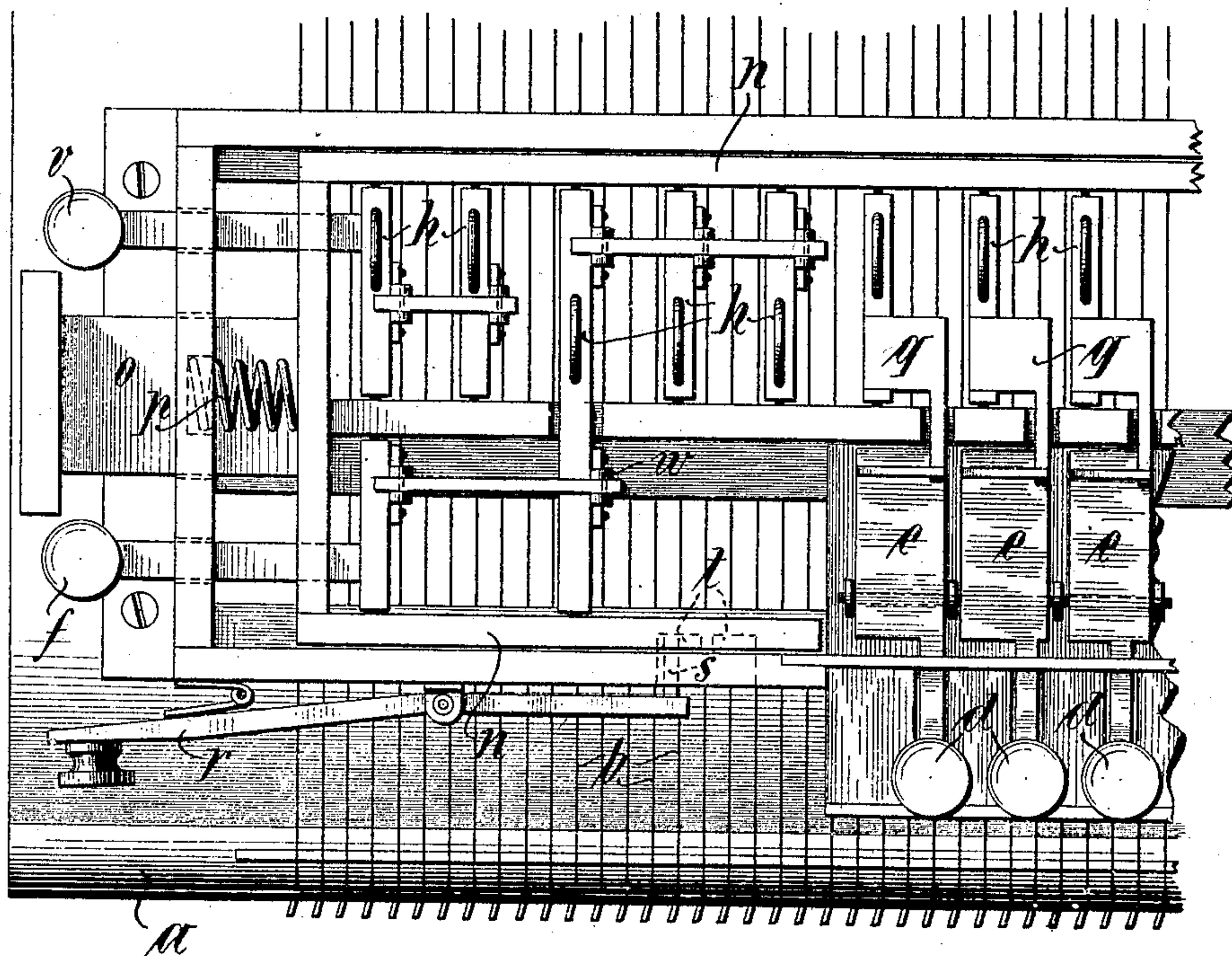


Fig. 4.



Fig. 6.



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# UNITED STATES PATENT OFFICE.

RICHARD GUMZ, OF BERLIN, GERMANY.

## ZITHER.

SPECIFICATION forming part of Letters Patent No. 755,572, dated March 22, 1904.

Application filed July 17, 1900. Serial No. 23,972. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD GUMZ, clerk, a citizen of the Kingdom of Prussia, and a resident of Berlin, Germany, (whose post-office address is Leipzigerstrasse 79,) have invented certain new and useful Improvements in Zithers, of which the following is a specification.

The object of the present invention is a zither-like instrument which is played by means of keys, the depression of which actuates plectra, these plectra picking the strings. The plectra are arranged in a movable sledge, and each of them may act at will on one out of a plurality of strings corresponding to the position of the sledge. By augmenting the number of strings which may be acted upon by the depression of each key and simultaneous shifting of the sledge containing the plectra the variety of the harmonies may be considerably augmented.

In the accompanying drawings the instrument is represented in two different modifications.

Figure 1 shows the simplest form in plan view with the cover removed. Fig. 2 is a front view of the same, some parts being shown in a cut through line A A of Fig. 1. Fig. 3 is a transverse section through part of the instrument on line B B of Fig. 1, the prism omitted. Fig. 4 is a vertical section on the plane of line C C of Fig. 5. Fig. 5 is a cut through line B B of Fig. 1. Fig. 6 is a top view of an instrument constructed on the same principle as the other, but allowing a greater variety in the harmonies.

A zither-like sounding-board *a* is strung with a certain number of strings *b*, according to the construction of the mechanism operating the pickers, the movement of which is produced by pressing down the keys *d*, *v*, and *f*. *e* represents levers having at their fore ends finger buttons or keys *d*. They serve for playing the melody-strings, while *v* produces the fundamental note of the accord and *f* the corresponding triad.

The key *d* is fastened to the end of a two-armed lever *e*, the other end of which is located below the front end of a single-armed lever *g*, pivoting on pin *z*. A prism *h* is able to

freely rotate around pins located in the front and back walls of the sledge and parallel to the lever *g*. This prism bears the picker *i*. A perforated cube *j*, fastened to the lever *g*, has another perforation at right angles to the former one. A horizontal arm *k*, rigidly connected with the prism *h*, is inserted with its free end into the second perforation of *j*. Whenever the key is depressed, the prism *h* oscillates round its pins, and the picker in swinging from the left to the right pulls the string by aid of the finger *l*. The keys having been released, the spring-governed lever *e* returns to its initial position, and the plectrum follows this movement. To prevent the picker on its return way from picking the string, its finger *l* is fastened to the holder *i* in such a way as to yield on the return movement.

The keys *v* and *f*, serving for playing the fundamental bass and the corresponding triad, respectively, show a somewhat different arrangement, the prisms *h* here having short upright arms *w*, which are connected by rods with similar arms of another prism *m*, pivoting round axial pins. By pressing the keys *v* or *f* an oscillating motion is imparted to the prism *m* by aid of the above-mentioned connection.

The entire mechanism hereinbefore described is mounted on a sledge *n* and may be shifted with the latter over a limited space in which all strings are arranged which each plectrum is to act upon.

The melody-strings are arranged in such a manner that the depression of the melody-keys produces, when the sledge is shifted to the right, "C," "E," "G," "C," (if, for example, the instrument is stringed, as shown in Fig. 1, in C-major.) The other tones of the diatonic scale are obtained by shifting the plectra in the other position.

The displacement of the sledge *n* is effected by pulling the handle *o* with the middle and ring fingers of the left hand, a spring bringing the sledge on releasing it back to its original position to the extreme right.

To avoid moving the right hand whenever the sledge is shifted, the back ends of the levers *e*, on which bear the ends of the levers



*g*, are broad enough to remain in contact with the latter in any position of the sledge. A similar sliding connection is provided for the keys *v* and *f*.

5 Fig. 6 of the accompanying drawings shows a modified form of the present invention, which differs by the mechanism for actuating the pickers and by a greater number of strings acted upon by one plectrum. The prisms *h*  
10 bear besides the plectrum a crooked arm *q*, the free end of which bears against the broad back end of the key-lever *e*.

In Fig. 6 the strings may be arranged in such a manner that the strings of different sets  
15 and of different keys or harmonies upon which single plectrum may strike are side by side—that is, between the strings of one key or harmony are arranged the strings of another key or harmony. The first group of strings forms  
20 the C-major scale, while the other group forms the F-major scale, so that every alternate pair of strings are of different harmony.

In order to prevent the shifting of the sledge so much as to come inadvertently from one  
25 harmony into the other one, a lever *r* is arranged within easy reach of the left-hand fingers which alternately catches with the pin *s*, fastened to its end, into one of the recesses *t*, located in the wall of the sledge *n*, each of  
30 them being just long enough to permit the sledge to be shifted over the space occupied by the two strings of a group.

It is evident that with the doubling of the melody-strings, hereinbefore described, also a  
35 doubling of the basses and the corresponding triads is to take place. The number of strings acted upon by one picker may still further be increased in an analogous way, thereby increasing also the variety of harmonies.

40 What I claim is—

1. The combination in a zither or the like of plectra shiftable laterally over the strings, a non-shiftable set of keys, and connections

between the plectra and the keys permitting each key to operate a single and the same plectrum in every position of the plectra. 45

2. In a zither or the like, the combination with a bridge extending across and above the strings and fastened to the sounding-box of the zither, of a sliding frame laterally shiftable on said bridge, a series of plectra arranged on said sliding frame, means for actuating said plectra and also arranged in said sliding frame, a keyboard fastened to the stationary bridge and comprising a set of non-shiftable key-levers for manipulating said plectra-actuating means, said key-levers having their inner ends broadened so as to operate a single and the same plectrum in every position of the sliding frame bearing the plectra, substantially as  
60 described and for the purpose set forth.

3. In a zither or the like, the combination with a bridge extending across and above the strings and fastened to the sounding-box of the zither and a sliding frame *n* laterally shiftable on said bridge, of a series of prismatic bars *h* turning on gudgeons in said sliding frame, a series of plectra screwed to said prismatic bars *h*, the one-armed levers *g* arranged parallel to the prismatic bars *h* in the said  
70 sliding frame, the block *j* turning loosely on the levers *g* and connected by the pin *k* with the prismatic bar *h*, a keyboard fastened to the stationary bridge and comprising a set of non-shiftable key-levers *e* having their inner  
75 ends broadened and engaging the one-armed levers *g* by means of their broadened ends, substantially as described and for the purpose set forth.

In testimony whereof I affix my signature in  
80 presence of two witnesses.

RICHARD GUMZ.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.