

(No Model.)

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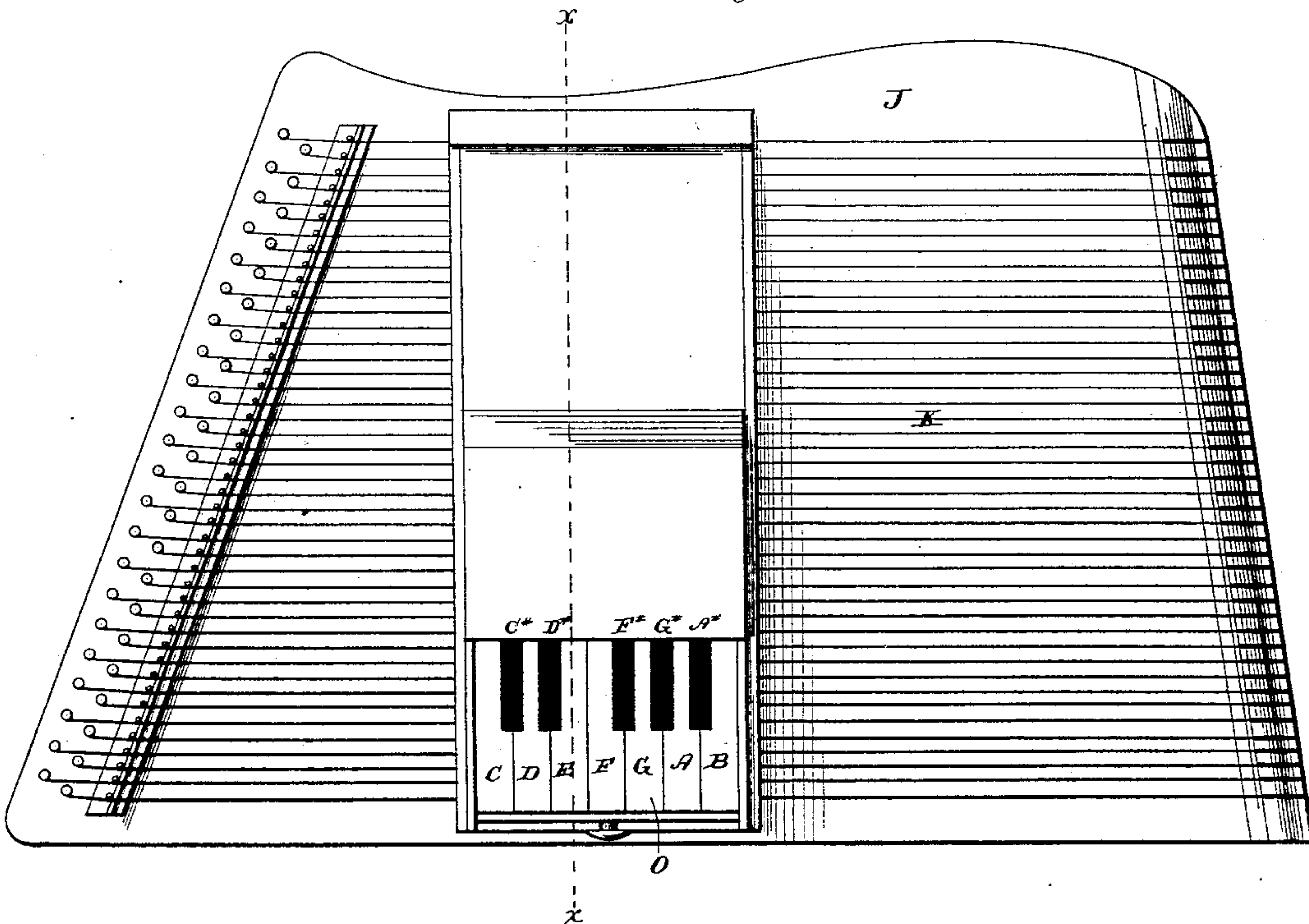
F. WIGAND.

ZITHER.

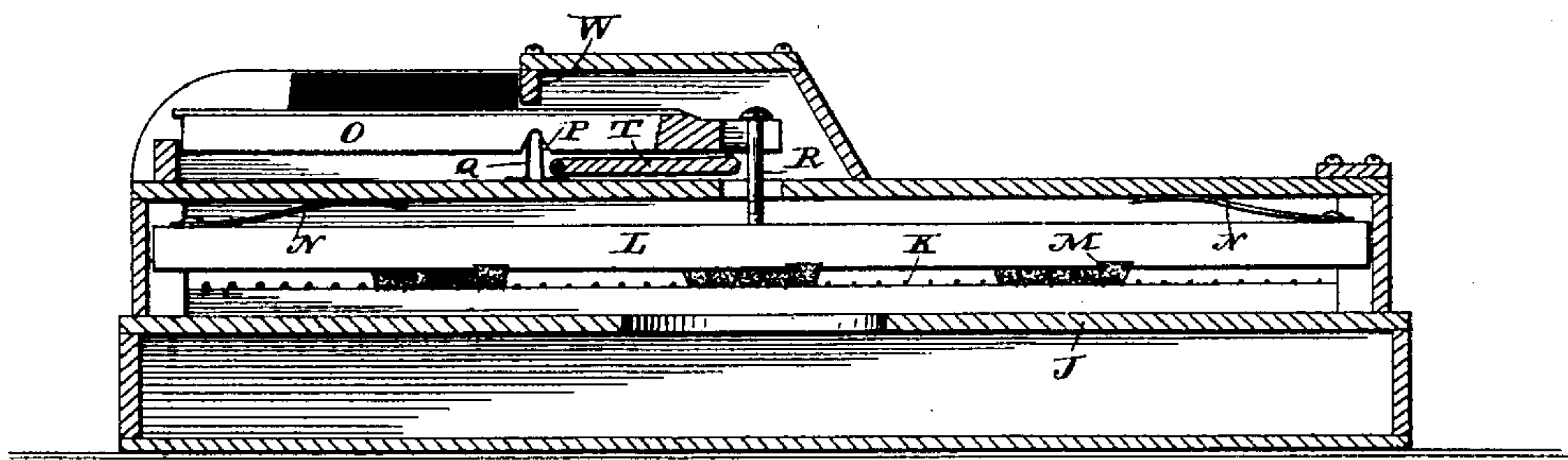
No. 390,830.

Patented Oct. 9, 1888.

*Fig. 1.*



*Fig. 3.*



Witnesses.  
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Ferdinand Wigand  
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(No Model.)

2 Sheets—Sheet 2.

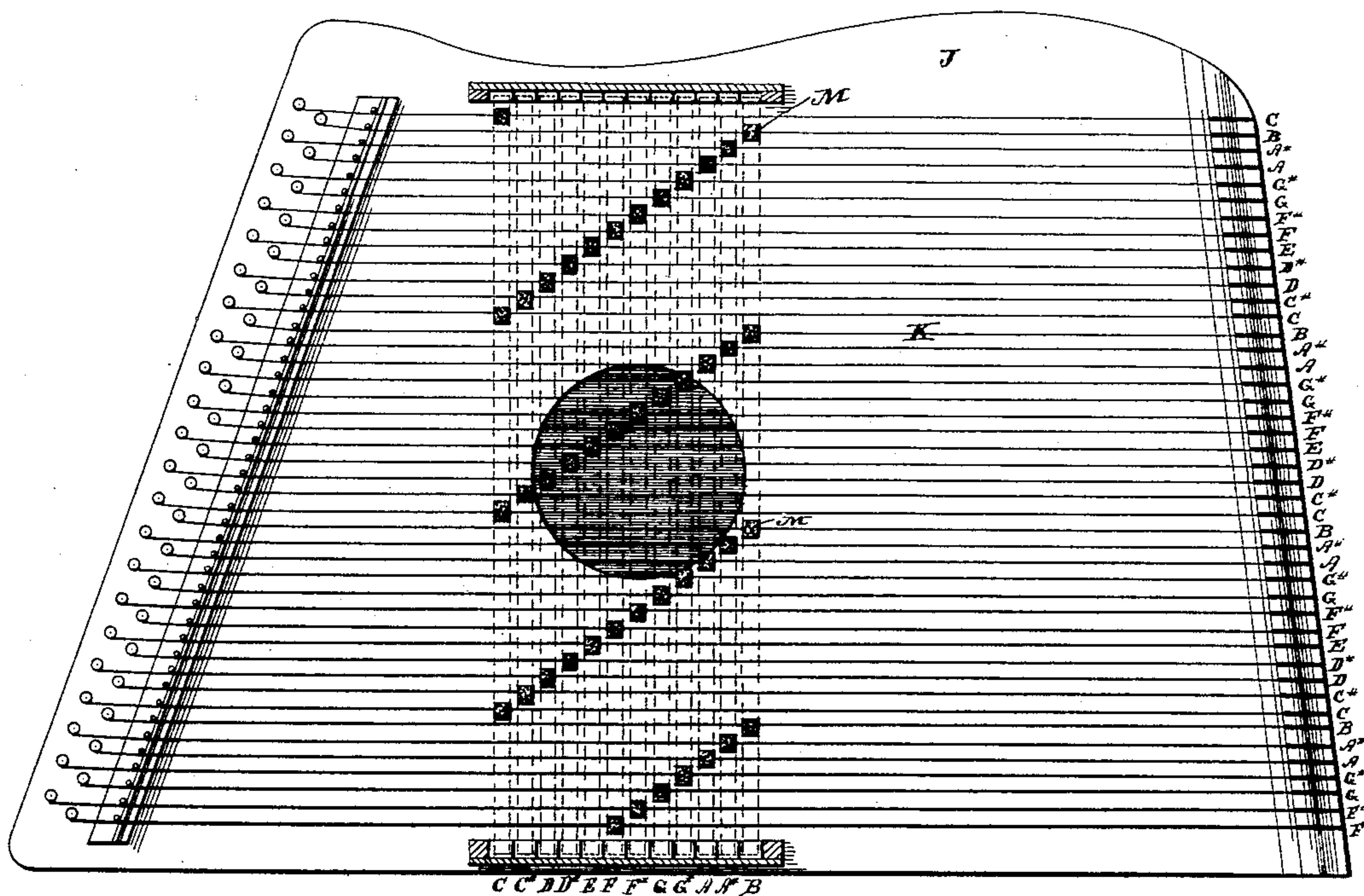
F. WIGAND.

ZITHER.

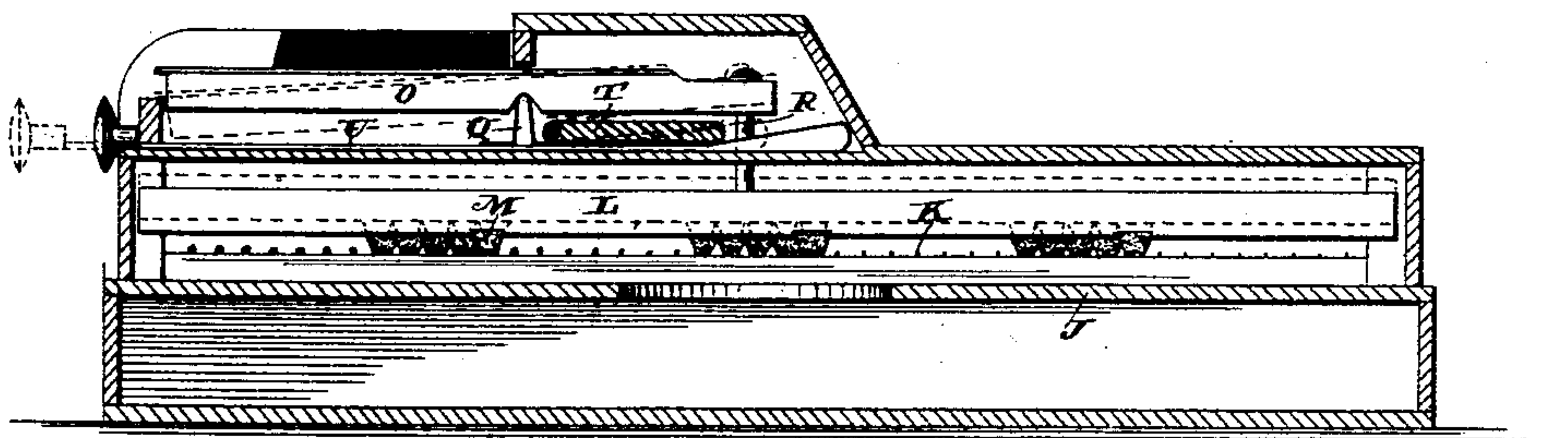
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Fig. 2.



*Fig. 4.*



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Inventory  
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# UNITED STATES PATENT OFFICE.

FERDINAND WIGAND, OF BROOKLYN, NEW YORK.

## ZITHER.

SPECIFICATION forming part of Letters Patent No. 390,830, dated October 9, 1888.

Application filed February 9, 1888. Serial No. 263,429. (No model.)

*To all whom it may concern:*

Be it known that I, FERDINAND WIGAND, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Zithers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

My invention relates to that class of zithers in which mechanical dampers are employed to stop off or prevent the vibration of certain of the strings, so as to enable chords to be struck by passing the fingers across the strings that are left free to vibrate.

Heretofore in instruments of this class a series of bars extending transversely across the strings have been provided, and each bar furnished with a series of damping-fingers so arranged that when any particular bar was operated or moved the damping-finger on said bar would come in contact with all of the strings except those whose vibration would produce a particular musical chord, it being necessary that there should be as many of the said transverse bars employed as there were chords to be produced, one bar being required for each chord.

Owing to the number of separate bars required for enabling all of the musical chords to be struck it has been found impracticable, on account of the attending expense, to provide instruments, except those of the most expensive kinds, with more than a comparatively few chord-bars, which has of course materially limited the capacity of the instrument.

It has been, therefore, my object to produce an instrument with only a limited number of damping-bars, but so constructed that by the various combinations of said bars with each other all the chords possible to be struck upon a piano can be produced.

In carrying out my invention a different principle of construction has been adopted from that heretofore employed in instruments of this class—that is to say, instead of providing each bar with dampers adapted to prevent or shut off the vibrations of all the strings except those of a particular chord, I have provided each bar with dampers adapted to pre-

vent or shut off the strings representing only a certain fundamental note and its octaves, and instead of keeping the dampers normally out of contact with the strings I have arranged to keep them normally in contact with the strings, the result being, when a single bar is operated, to release or leave free to vibrate only the strings representing a certain note and its octaves, or, when several bars are operated, to release and leave free to vibrate the several notes and their octaves corresponding to said bar, thereby enabling the performer, by the manipulation of several of the proper bars, to release any desired combination of strings so as to produce any particular chord desired.

The details of mechanism which I have called to my aid in carrying out my invention I will now proceed to describe, and will then make them the subject of claims at the close of this specification.

Referring to the accompanying drawings, Figure 1 represents a top plan view of an instrument constructed in accordance with my invention. Fig. 2 is a horizontal sectional view of the same, showing the relative position of the dampers, and in dotted lines the position of the bars to which the dampers are attached. Fig. 3 is a cross-sectional view taken on line *x x*, Fig. 1, showing the construction of the keys and connections by which the bars are operated. Fig. 4 is a detail view of the devices for throwing all of the dampers off the strings, so as to enable the instrument to be played like an ordinary zither.

Similar letters of reference in the several figures indicate the same parts.

The letter J represents the sounding board or body of the instrument, preferably constructed in the form shown. K are the strings, preferably forty-five in number.

The longest string is preferably tuned to correspond to the note F below the staff of the bass clef and the succeeding strings are tuned to correspond to the progression of notes represented by the keys of a piano succeeding the one representing F in the scale—that is to say—F F $\sharp$ , G G $\sharp$ , A A $\sharp$ , B, C C $\sharp$ , D D $\sharp$ , E, F, and so on, thus giving with the forty-four strings a range of tones corresponding to those embraced by three octaves and a half on a piano.



Lare the damper-bars, arranged transversely of the strings K and preferably twelve in number, and corresponding to the tones represented by the black and white keys within the compass of an octave on a piano. These damper-bars are each provided with dampers or pads M, of felt or other suitable material, which are adapted to rest normally on the strings representing a certain note and its octaves—that is to say, the first bar is provided with dampers which rest upon the strings representing C $\sharp$ , and so on, to complete the series of notes C C $\sharp$ , D D $\sharp$ , E, F F $\sharp$ , G G $\sharp$ , A A $\sharp$ , B. Springs N are preferably employed at the ends of the damper-bars for the purpose of normally keeping the dampers pressed against their respective strings.

For the purpose of conveniently operating the damper-bars, I arrange above them a key-board provided with twelve keys, O, arranged in a manner corresponding to the twelve black and white keys embraced within the octave C natural to C natural on the piano. Each of these keys O is provided with a notch, P, and is pivoted at said notch on a bridge-piece or pivot-bar, Q. The end of each key is also preferably slotted, and connection is made between it and its corresponding damper-bar preferably by means of a screw, R, passed down through the slotted end of said key and into said bar, as shown in Fig. 3. By adjusting these screws the throw of the damper-bars can be regulated.

The keys are held in proper position upon the pivot bar or bridge by means of a cross-piece, W, extending over their upper surfaces, as shown in Fig. 3.

The manner of using the instrument is very simple. The performer has only to press with his left hand upon such of the keys O as represent the notes of the chord he desires to play, which will have the effect of raising the corresponding damper-bars and releasing, so as to be free to vibrate, the strings corresponding to said notes. Then with the thumb or fingers of his right hand he runs over the strings and sets said released strings into vibration and produces the chord. By manipulating the key-board with his left hand as he would the keys of a piano he can produce all the chords capable of being produced on the latter instrument.

To enable my improved instrument to be played as an ordinary zither, I provide a cross-bar, T, preferably pivoted at one edge, as shown in Fig. 3, beneath the inner ends of all the keys O, and provide means for lifting said cross-bar so as to relieve all of the strings of

their dampers, leaving them free to be played upon. A convenient means for operating the cross-bar I find to be a longitudinal rod, U, provided on its inner end with a wedge-shaped portion, V, and on its outer end with a knob which projects below the key-board. By pulling upon this knob the incline on the other end of this rod forces upward the swinging cross-bar and lifts all the keys simultaneously, and with them, through the described connection, the damper-bars.

My improved instrument can be used either for playing melodies or as an accompaniment to the voice or other instruments, and will be found much more useful and pleasing than instruments of the same class that have preceded it.

Having thus described my invention, what I claim as new, is—

1. In an instrument of the class described, the combination, with the series of strings, of a series of damper-bars each provided with dampers corresponding to strings representing a given note and its octaves, whereby upon manipulating the proper damper-bars musical chords resulting from the combinations of the notes produced by the strings thus released may be played, substantially as described.

2. In an instrument of the class described, the combination, with the series of strings, of a series of damper-bars each provided with dampers for particular strings, and a key-board for manipulating said damper-bars with one hand while the chords are struck by the other hand, substantially as described.

3. The combination, with the series of strings, of the series of damper-bars and their dampers, the pivoted keys, and adjustable connections between the damper-bars and keys, substantially as described.

4. In an instrument of the class described, the combination, with a series of strings, of a series of damper-bars each provided with dampers for particular strings of the series, the pivoted keys, the connections between the keys and the bars, the cross bar beneath the inner ends of all the keys, and a rod, U, provided with a wedge-shaped portion which operates to vibrate the cross-bar when the rod is pulled, substantially as described.

5. The combination of the series of strings, the damper-bars, the keys having the slotted ends, and the adjustable screw-connections, substantially as described.

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Witnesses:

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