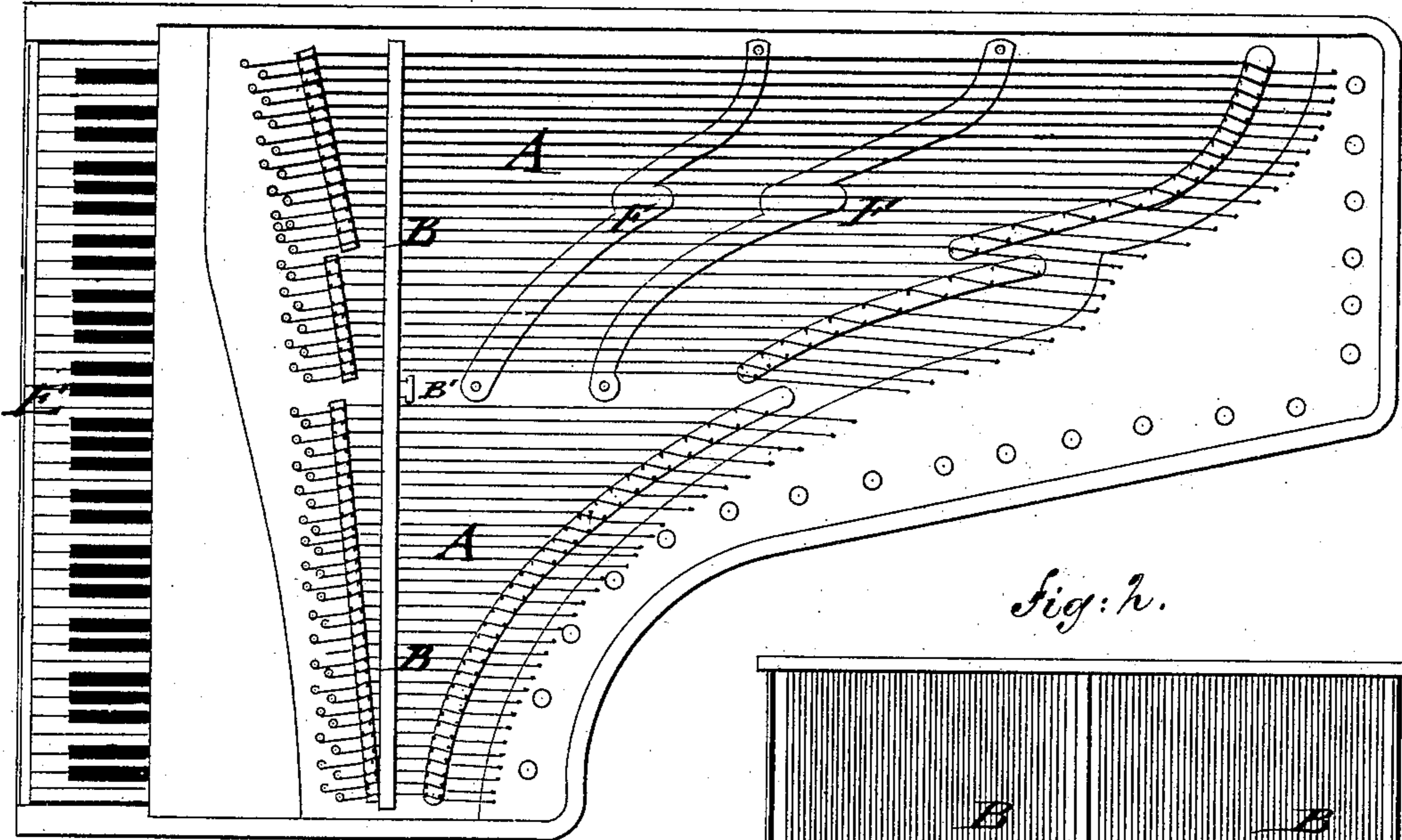


G. GREINER.  
VIOLIN PIANO.

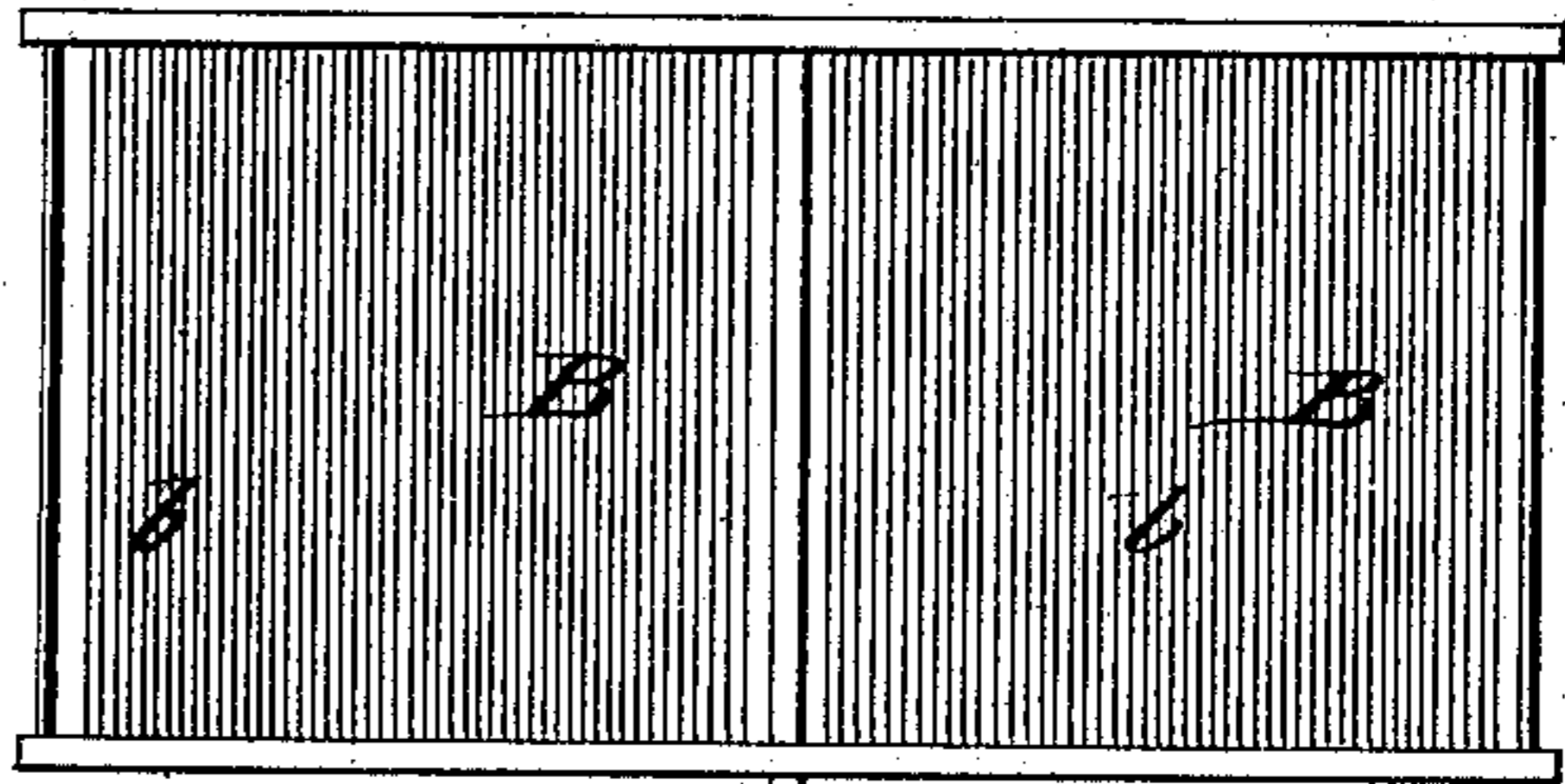
No. 180,222.

Patented July 25, 1876.

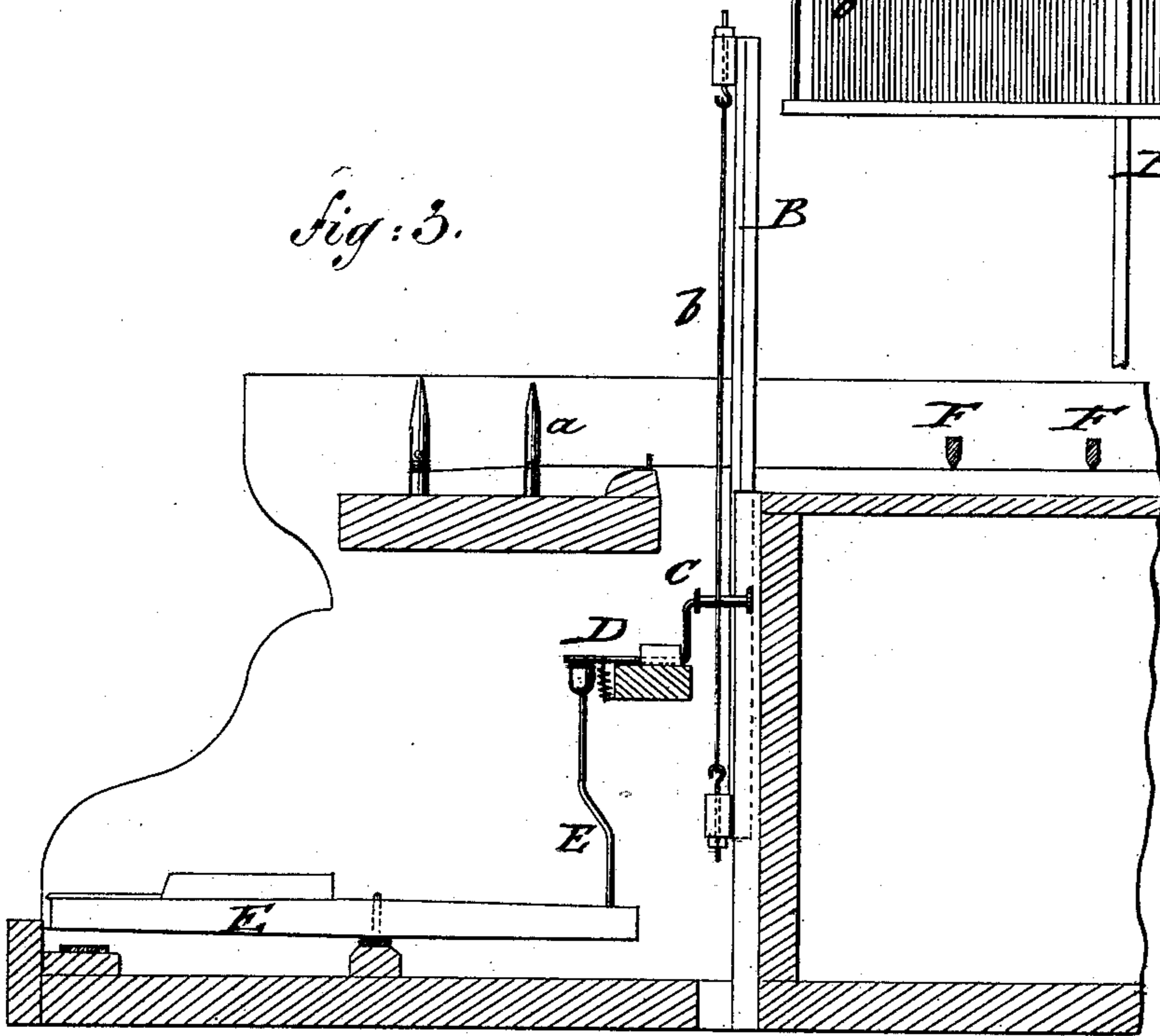
*Fig: 1.*



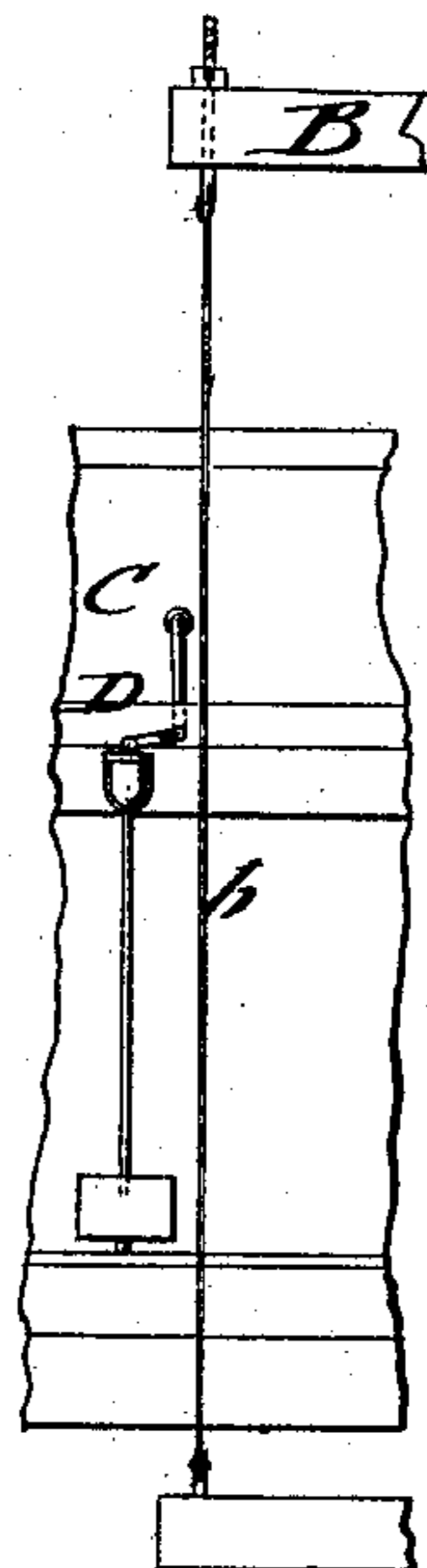
*Fig: 2.*



*Fig: 3.*



*Fig: 4.*



WITNESSES:

*John Goethals*  
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INVENTOR:

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# UNITED STATES PATENT OFFICE

GEORGE GREINER, OF SACRAMENTO, CALIFORNIA.

## IMPROVEMENT IN VIOLIN-PIANOS.

Specification forming part of Letters Patent No. **180,222**, dated July 25, 1876; application filed April 25, 1876.

*To all whom it may concern:*

Be it known that I, GEORGE GREINER, of Sacramento, in the county of Sacramento and State of California, have invented a new and Improved Violin-Piano, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view of my improved violin-piano, showing the general disposition of parts; Fig. 2, a detail side view of the bow-frame; Fig. 3, a detail side view, showing the key-action of the instrument; and Fig. 4, an end view of the action.

Similar letters of reference indicate corresponding parts.

The invention is an improvement in the class of musical instruments combining the characteristics and qualities of a piano and violin, the strings or wires of a piano being retained, and reciprocating bows substituted for hammers. The invention consists in the combination and arrangement of parts, as hereinafter described and claimed.

The invention consists of the arrangement of a number of vertically-reciprocating bows, connected to a frame, in lateral direction to and intermediately between a corresponding number of strings. The bows are pressed against the strings by small rollers, operated by keys and connecting-lever mechanism.

The series of lower strings are placed in connection with a system of pedal-operated fingers, that produce the harmonic (flageolet) sounds in the octave, quint, third, or at any other interval desired.

In the drawing, A represents a system of strings, that are arranged analogous to those of a grand or other piano, with the difference, however, that only one string is employed for each sound. The strings are stretched and tuned in similar manner to the strings of a piano, the minute adjustment of each string being accomplished by an additional screw-pin, *a*, that presses by a groove or recess on the string. A bow-frame, B, is arranged laterally to the system of strings, and provided with as many bows *b*, in imitation of violin-bows, as there are strings, each bow being intended to touch its corresponding string. The material and character of the bows correspond also to the thickness of the strings, those in

the treble requiring lighter bows, made of hair, while those in the bass require heavier bows, made of strong hair, wood, or other suitable material. The bows are stretched in the frame B by suitable adjusting mechanism. They are arranged symmetrically at both sides of a central supporting-bar, B', that is connected to a pedal, or to a separately-turned crank-shaft and such transmitting mechanism, so that a slow reciprocating motion is imparted to the bow-frame, either by the foot of the player or by other power. The bows are placed intermediately between the strings, and carried against the same by the pressure of small revolving rollers C at the end of fulcrumed and spring-acted wire arms D, which are operated by actuating-rods and keys E.

The keys E are arranged in a key-board in similar manner as in pianos, but are capable of producing a different effect, as, by the stronger or lighter touch of the keys, a sound increasing or decreasing in power is obtained, while also the sounds may be sustained for any duration, so that musical sounds of different effect and character from that of a piano are obtained, and a greater variety of expression and greater power brought within reach.

The lower half or bass-strings are arranged with one or more systems of harmonic (flageolet) fingers, F, that are operated by suitable pedal-connections, a separate system of fingers being provided for the octave, another for the quint, a third for the major third, and so on, according to the intervals that are desired to be produced. These fingers are brought in contact with the strings, respectively, at the center point, and at points at a distance of one-third, fifth, or other part of the length of the strings, and admit thereby, in imitation of the playing of violins or similar instruments by hand, the use of each of the lower or bass strings for two or more harmonic sounds, increasing thereby the capacity of the instrument by the large number of sounds produced by a limited number of strings.

The fingers may be made of sliding leather-lined leads, guided in suitable manner, and operated jointly throughout the system belonging to one of the dividing-points of vibration.

The dampers are constructed similar to

those in pianos, and may be brought in connection with the harmonic fingers described, or not, as deemed necessary by the player for the effective rendering of the music.

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

1. The bows B, vertically movable, connected together in a steel frame, and provided with fastenings that stretch the bows, as shown and described.

2. The combination, with key-board, of up-

right jack fastened to keys, the roller, the moving bows, and the strings, all arranged as and for the purpose set forth.

3. The wooden bows, in combination with the bass-strings, as specified.

4. The grooved screw-pins between bridge and tuning-pins, as set forth.

GEORGE GREINER.

Witnesses:

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