No. 665,690. Patented Jan. 8, 1901.

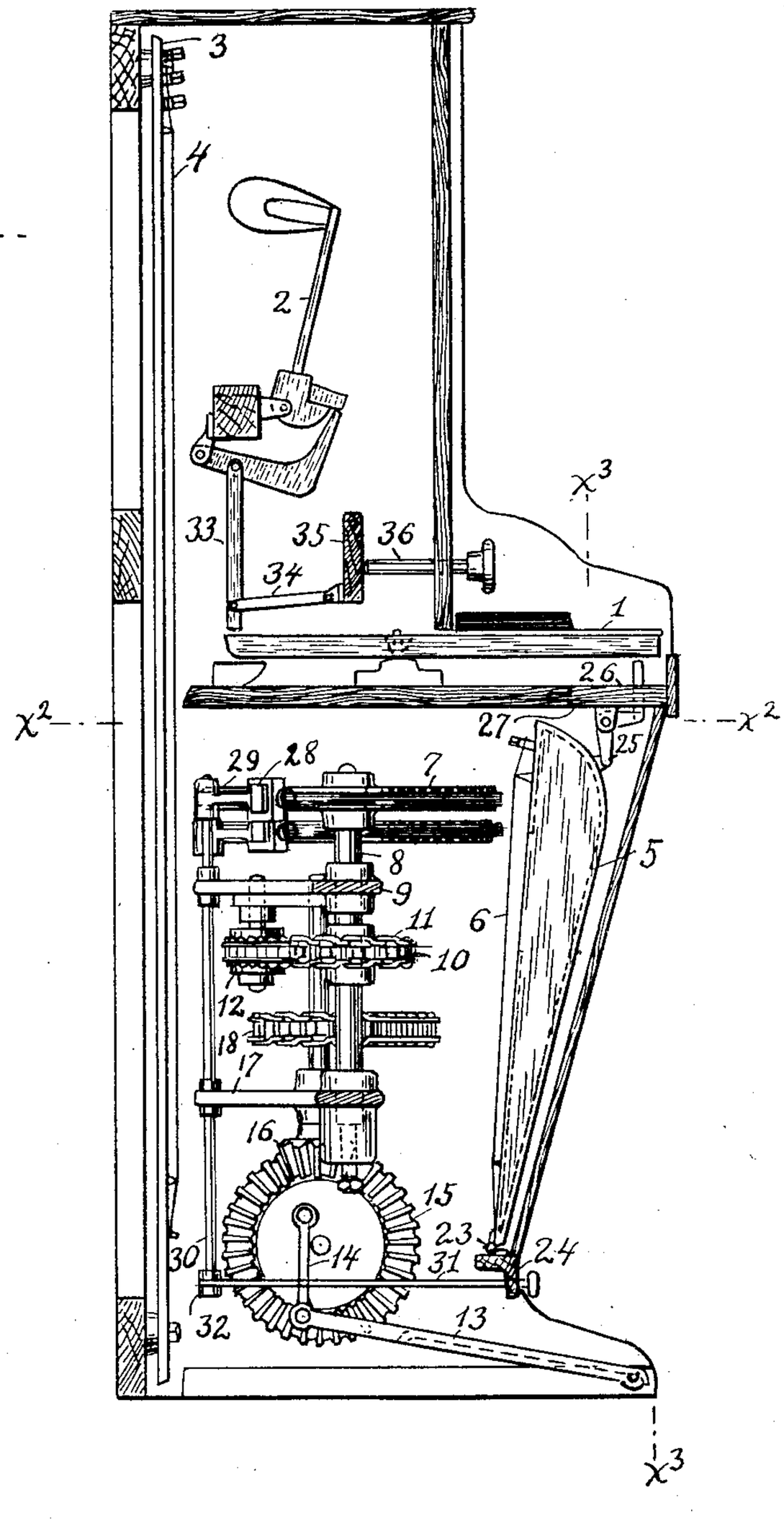
R. MEGA.

PIANO VIOLIN.

(Application filed Nov. 17, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

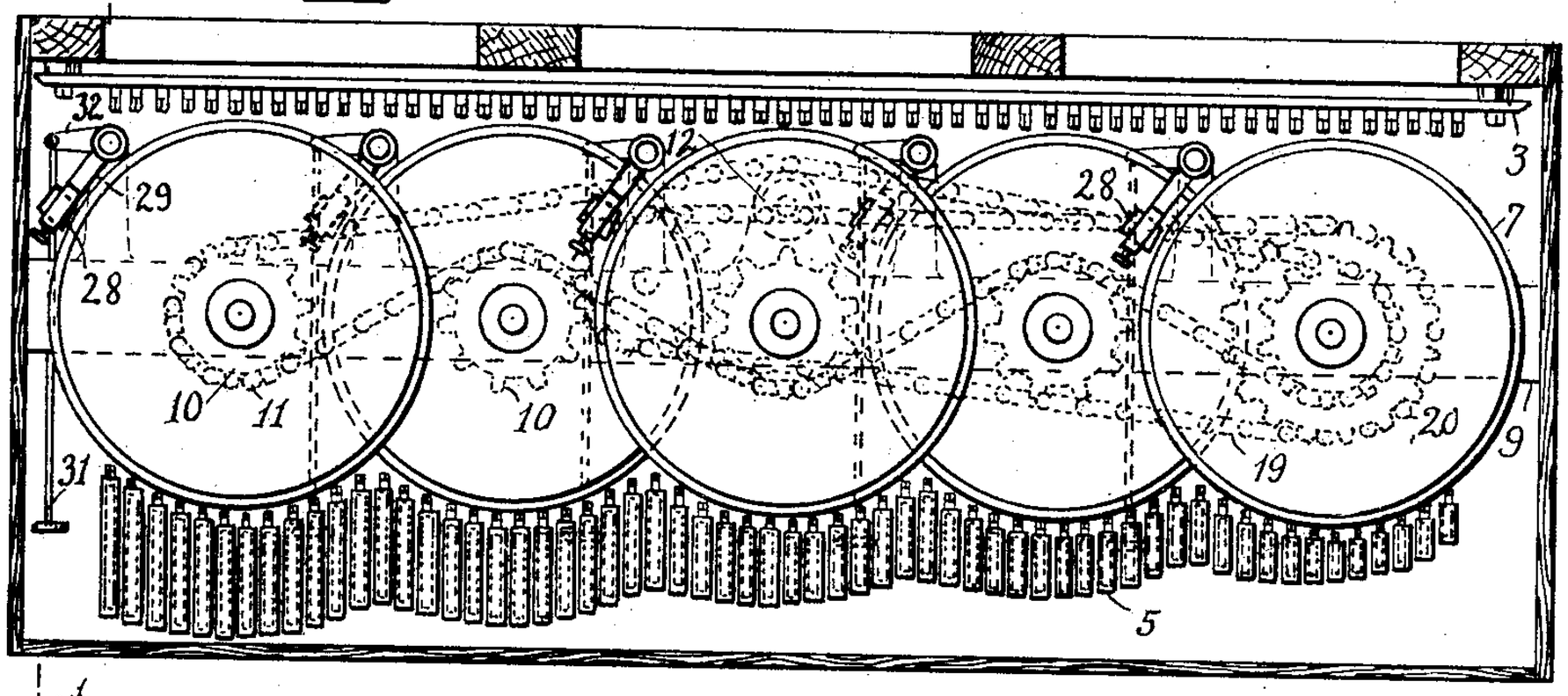
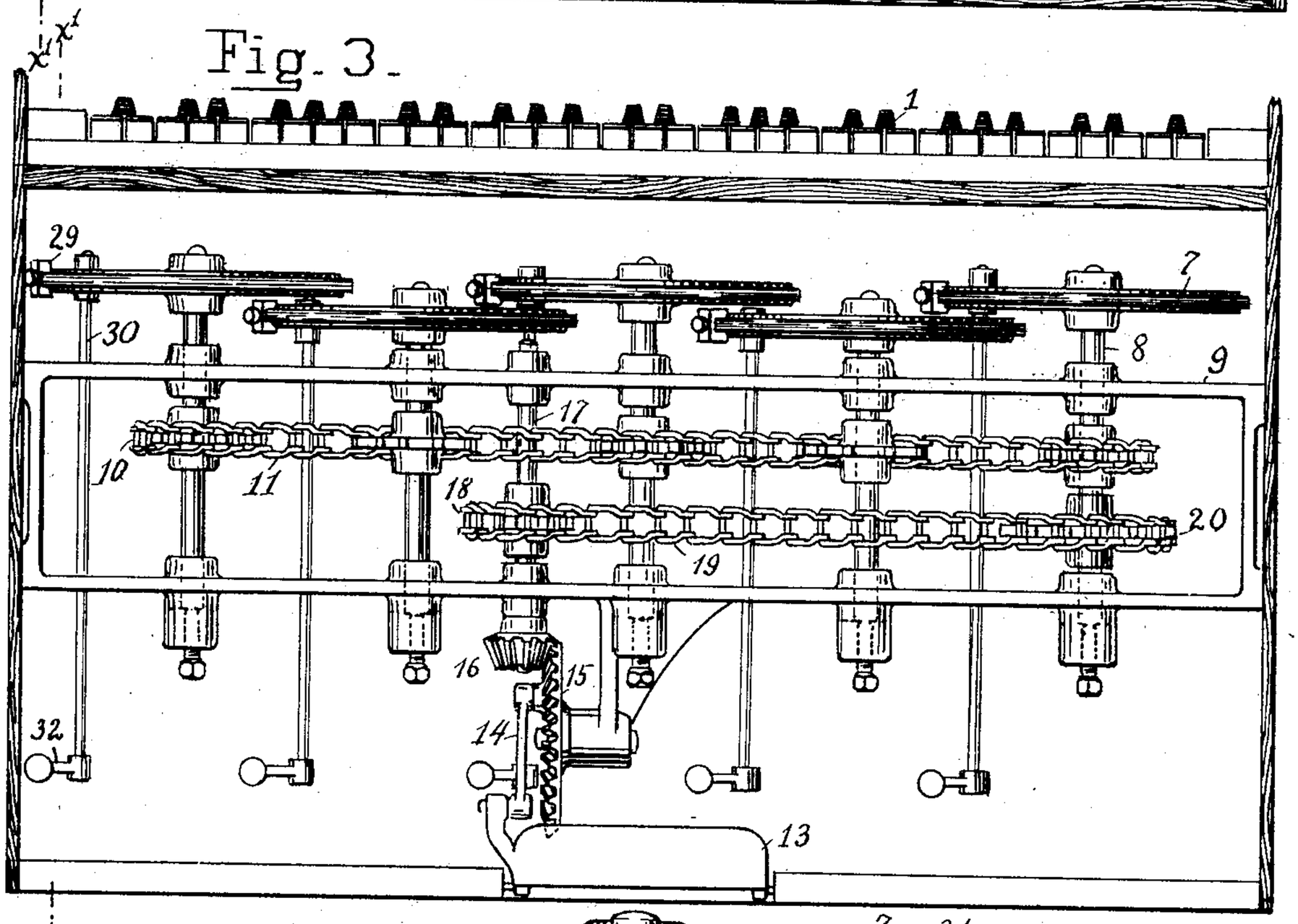


Fig. 3.



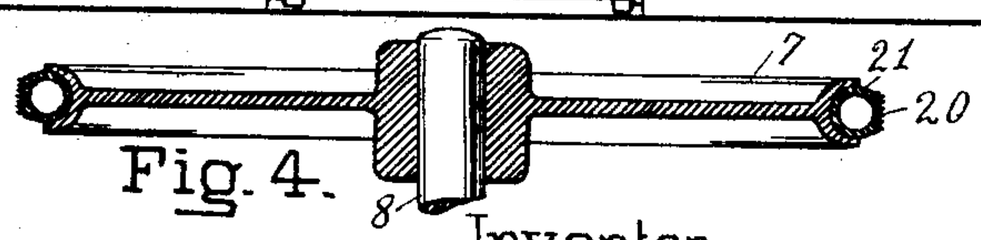


Fig. 4.

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UNITED STATES PATENT OFFICE.

ROCCO MEGA, OF NEW YORK, N. Y.

PIANO-VIOLIN.

SPECIFICATION forming part of Letters Patent No. 665,690, dated January 8, 1901.

Application filed November 17, 1899. Serial No. 737,328. (No model.)

To all whom it may concern:

Be it known that I, ROCCO MEGA, a citizen of the United States of America, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented certain new and useful Improvements in Piano-Violins, of which the following is a specification.

My invention relates to improvements in the piano-violin or harmonichord, which is a stringed instrument with a keyboard producing tones similar to those of the violin by the pressure on the strings of the revolving bow-wheels or other bowing means and the consequent vibration of the strings by the bow-wheels. The improvements relate to the combination of the harmonichord with a pianoforte, so that both can be played at the same time from the same keys. They also relate to the manner of arranging and driving the bow-wheels and in the employment of an inflated tire for the bow-wheels, all as hereinafter described and claimed.

In the accompanying two sheets of drawings, Figure 1 is a vertical section on the line $x' x'$ of Figs. 2 and 3, showing my improvements in connection with an upright piano. Fig. 2 is a horizontal section on the line $x^2 x^2$ of Fig. 1. Fig. 3 is a vertical section on the line $x^3 x^3$ of Fig. 1, the upper part being broken away. Fig. 4 is an enlarged section through one of the bow-wheels.

The invention is shown in connection with an ordinary upright piano having the usual keyboard 1, piano-action 2, sounding-board 3, and piano-strings 4.

The harmonichord is located below the piano-keyboard. It consists of a series of sounding-boxes 5 with vibrating strings 6, ranged in front of a series of bow-wheels 7. The bow-wheels are mounted on the ends of parallel spindles 8. These spindles are journaled in a framework 9, which is rigidly secured to the case of the instrument. The spindles are vertical and are ranged parallel to each other about midway between the front and back of the instrument. The bow-wheels at the tops of these spindles are at slightly different heights and are of sufficient diameter to overlap. In consequence the bow-wheels and the sounding-boxes are more compactly arranged than would be otherwise practicable. On each bow-wheel spindle is a sprocket-wheel 10, and a chain-wheel 11 is led over each of the sprocket-wheels and an idler-wheel 12, the spindles being thereby connected. They are driven by a treadle 13. This, through the pitman 14, revolves the bevel-gear 15, which meshes with the bevel-pinion 16 on the lower end of the jack-shaft 17. A sprocket-wheel 18 on the jack-shaft, through a chain 19, drives a sprocket-wheel 20 on one of the bow-wheel spindles, and thereby the other spindle. The bow-wheels as they revolve and press against any of the vibrating strings bow them and vibrate them in substantially the same way in which they would vibrate when struck by a violin-bow. The bow-wheels have inflated rubber tires 21 with a flat tread, on which hair 22 is wound to provide a surface suitable for bowing the vibrating strings.

The lower ends of the sounding-boxes are hinged at 23 to a rail 24, and the upper ends are swung to and from the bow-wheels. This is done through connections to the keys of the piano-keyboard. The connections consist of the elbow-levers 25 and posts 26. These parts are mounted on a rail 27, which can be removed from the case without disturbing the parts of the case which carry the other parts of the mechanism. By removing this rail the sounding-boxes can be folded forward to give access to the mechanism.

Resin-blocks 28 are clamped in sockets at the ends of arms 29, adjoining each bow-wheel. These arms are mounted on rock-shafts 30, and rods 31 are attached to the arms 32 on the rock-shafts. These rods end in handles outside the case. By pulling on these rods the resin is applied to the wheels.

The instrument is so constructed that either the pianoforte or the harmonichord may be played without sounding the other. The harmonichord can be kept from sounding by not revolving the bow-wheels. The pianoforte is kept from sounding by disconnecting the action from the keyboard. This is effected by pushing the extension-rods 33 of the action beyond the ends of the keys. The extension-rods are kept in place at their lower ends by extension-guides 34, hinged to the extension-rods and to the bottom rail 35. This bottom rail is pivoted, so as to swing about its upper edge. It is rocked by the push-bar

36, which terminates in a knob outside the case of the instrument. When the rod is pushed in, the rail is tilted toward the back, and the lower ends of the extension-rods are pushed back of the ends of the key-levers, where they will not be lifted when the keys are played.

Many modifications may be made in the arrangement and construction of the parts without departing from the spirit of the invention. Thus the mechanism for the harmonichord may be placed at any desired angle, the bow-wheels, for instance, being in vertical instead of horizontal planes. The spindles for the bow-wheels and the sounding-boxes would then need to be in horizontal planes.

A treadle is shown in the drawings for operating the bow-wheels; but it is obvious that a motor, either electric or otherwise, might be used instead.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a musical instrument, the combination with a keyboard of a series of overlapping bow-wheels mounted on parallel axes, a series of sounding-boxes adjacent to each bow-wheel, each sounding-box being provided with a vibrating string, mechanism operated by the keys to effect the vibration of the strings by the bow-wheels, sprocket-wheels for the bow-wheels, a chain connecting the sprocket-wheels by being led over them in an undulating course, and means for revolving the bow-wheels, substantially as described.

2. In a musical instrument, the combination with a keyboard, of a series of overlapping bow-wheels mounted on parallel axes, a series of sounding-boxes adjacent to each bow-wheel, each sounding-box being provided with a vibrating string, mechanism operated by the keys to effect the vibration of the strings by the bow-wheels and means for simultaneously revolving the bow-wheels, substantially as described.

3. In a musical instrument of the class described, the combination with a series of sounding-strings, of a bow-wheel, and an inflatable tire upon the bow-wheel, having a bowing-surface with a flat tread, adapted to set the strings in vibration, substantially as described.

Signed by me in New York city, borough of Manhattan, State of New York, this 15th day of November, 1899.

ROCCO MEGA.

Witnesses:
SAMUEL W. BALCH,
EDWIN S. HUNT.