

No. 860,288.

PATENTED JULY 16, 1907.

C. L. FLINDT.
PIANO VIOLIN.

APPLICATION FILED OCT. 29, 1906.

2 SHEETS—SHEET 1.

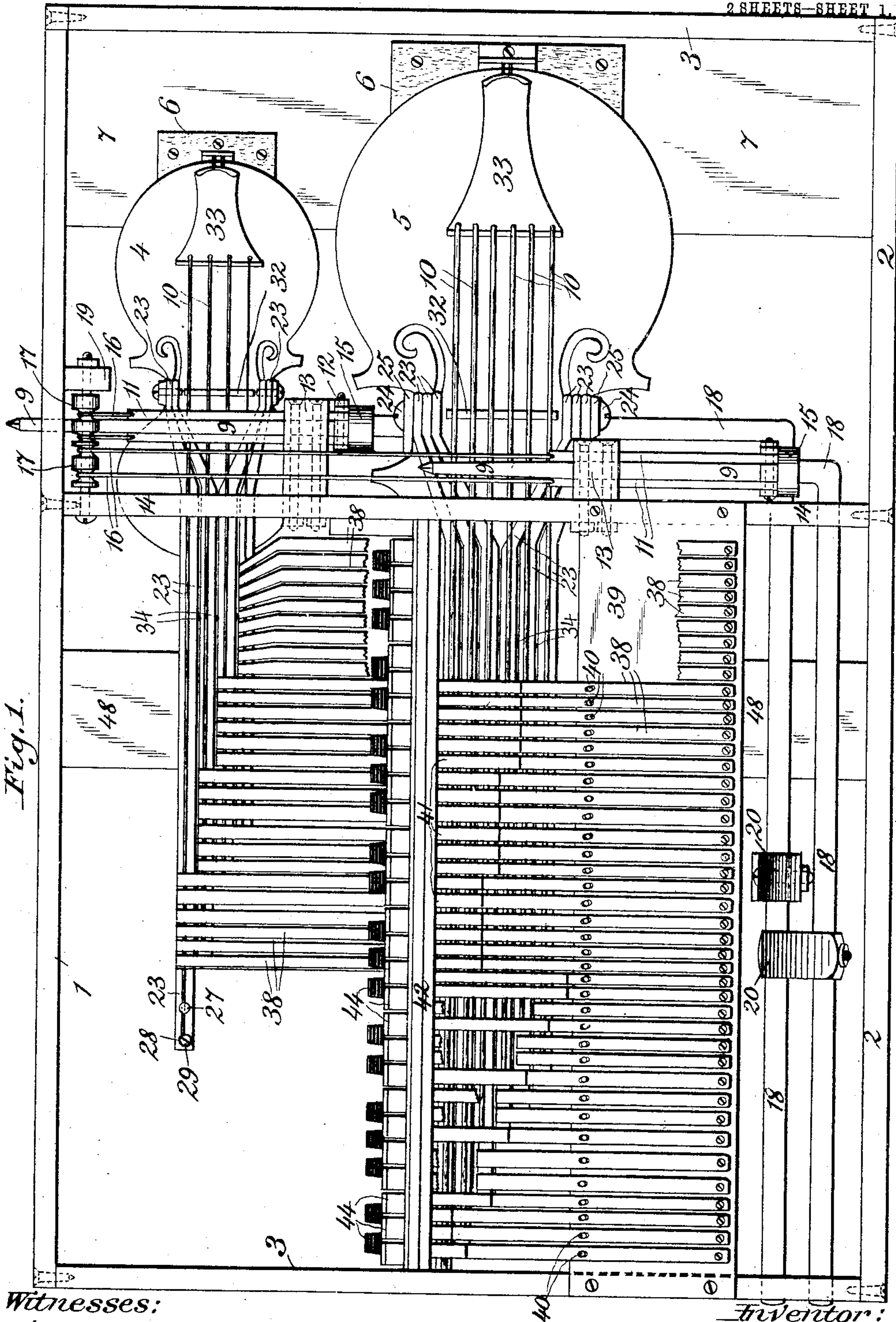


Fig. 1.

Witnesses:

Homer V. Flindt.
Jos. S. Leach

Inventor:

Charles L. Flindt,

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2 SHEETS-SHEET 2.

Fig. 2.

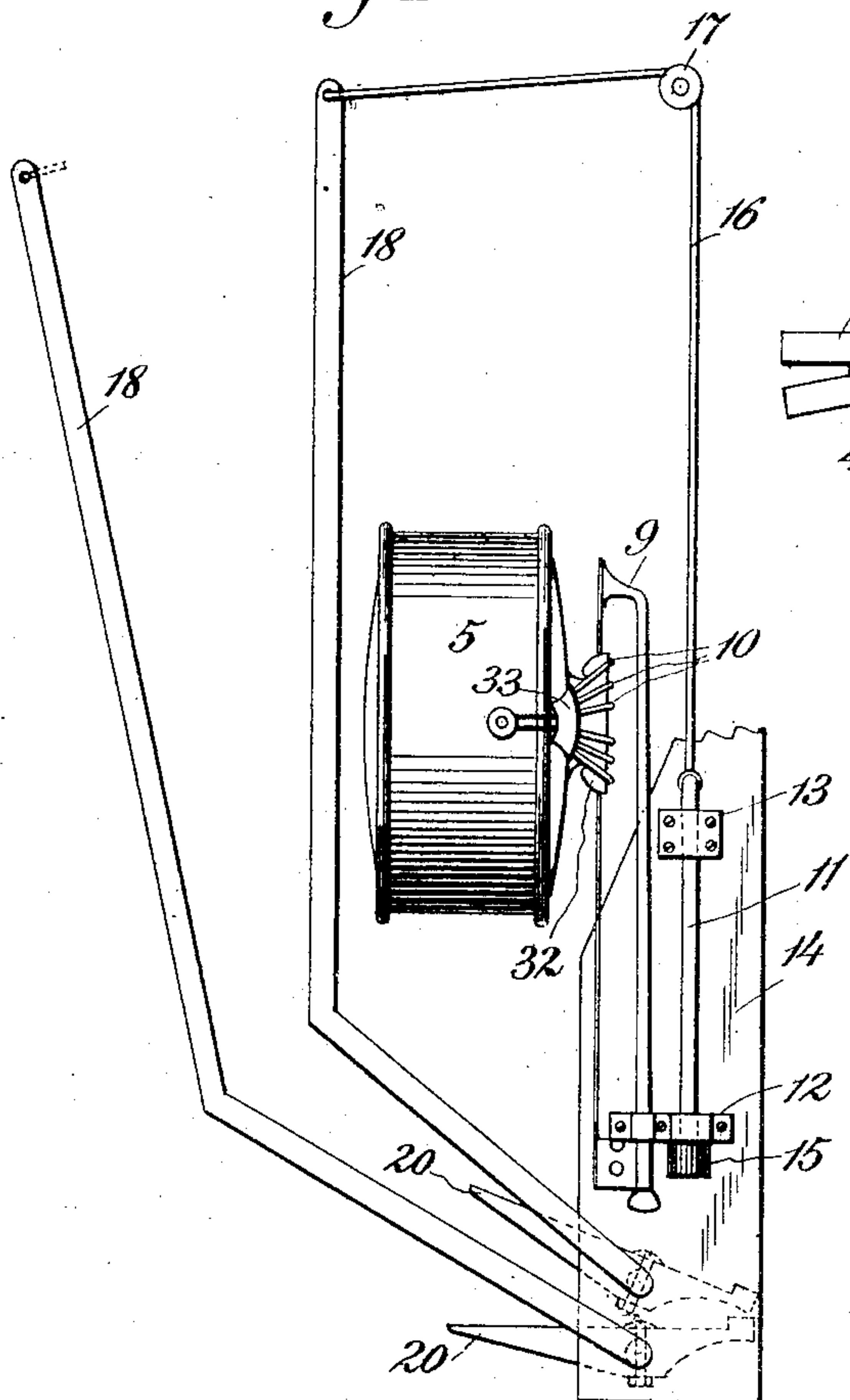


Fig. 4.

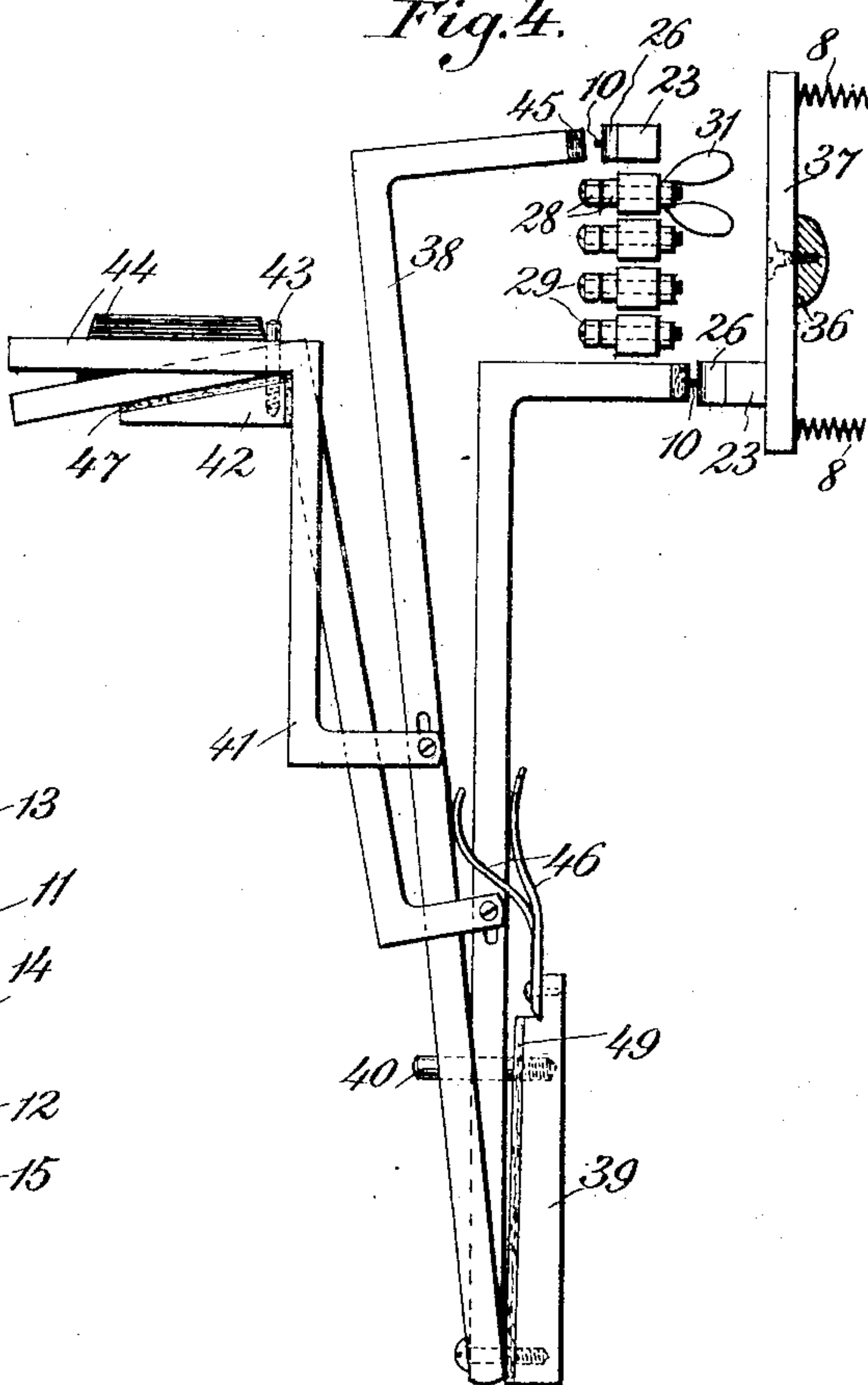
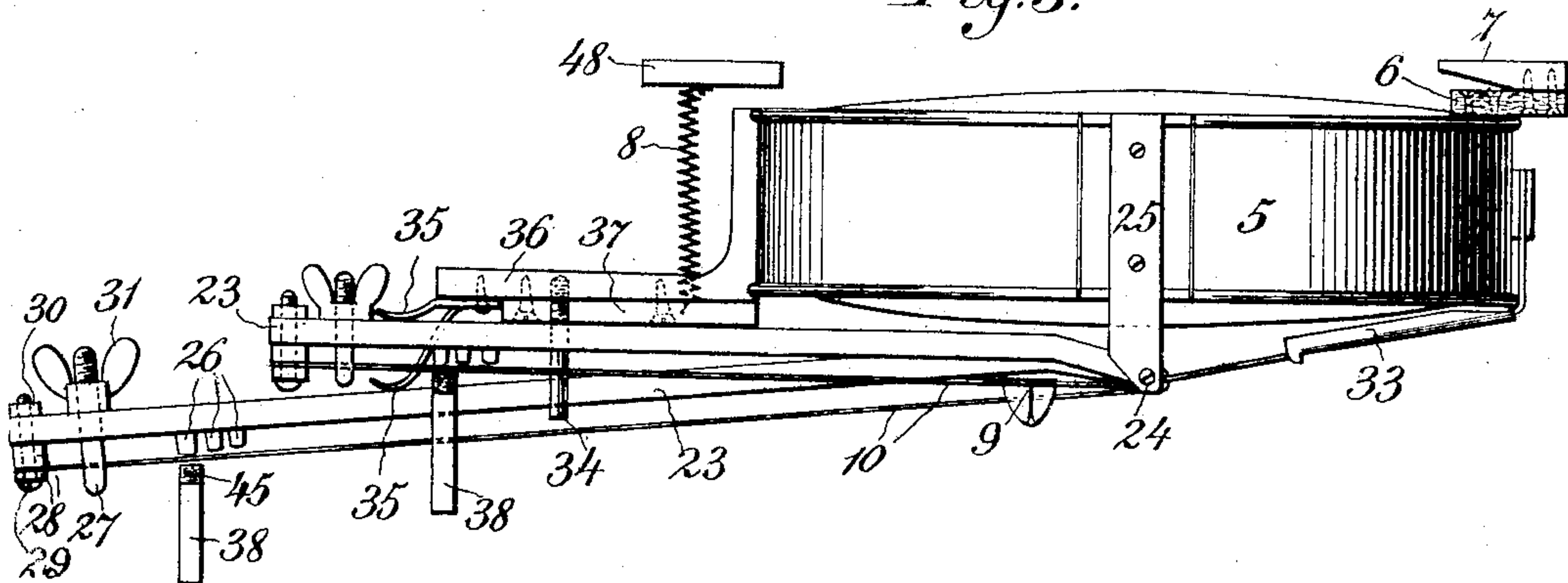


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES L. FLINDT, OF SAN JOSE, CALIFORNIA.

PIANO-VIOLIN.

No. 860,288.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed October 29, 1906. Serial No. 341,116.

To all whom it may concern:

Be it known that I, CHARLES L. FLINDT, a citizen of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented
5 a new and useful Piano-Violin, of which the following is a specification.

My invention relates to improvements in piano violins in which reciprocating bows vibrate sound producing strings; and the objects of my invention are,
10 first, to provide means for reciprocating bows, second, to suitably support sounding boxes that have strings arranged thereon; and, third, to afford facilities for placing the strings, independent of one another, into contact with reciprocating bows. I attain these ob-
15 jects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1, is a front elevation. Fig. 2, is a detail elevation of the mechanism for operating the bows. Fig. 3, is a top view of a sounding box and the mechanism
20 thereon. Fig. 4, is a detail elevation of the key construction for operating the mechanism on the sounding boxes.

Similar letters refer to similar parts throughout the several views.

25 The top plate 1, bottom plate 2, and the standards 3, constitute the framework of the instrument. The sounding boxes 4 and 5, are hinged with heavy felt hinges 6, that are secured on their backs, to the board 7 which is secured at its ends to the top and bottom
30 plates; at their other end as shown in Fig. 3, the sounding boxes are held in place by the compression springs 8, which are secured at one end to plate 37 on the necks of the sound boxes, and at their other ends to the board 48 at the back of the instrument.

35 The bowing of the strings is effected by the bows 9, the bowing surfaces of which pass under the strings 10. The bows are secured to the rods 11, by the clamps 12, which bolt them together in parallel relation to one another; the said rods pass through guide holes in
40 the blocks 13, these blocks are bolted to the board 14, which is secured to the top and bottom plates. The lower ends of the said rods have weights 15 fastened thereto and their upper ends have cords 16 secured to them which pass up and over the pulleys 17 and connect
45 with the lever arms 18; the said pulleys are journaled between board 14 and block 19 that is secured to the top plate. The lever arms 18, are bent at right angles and journal in board 14 and one of the standards 3; on these lever arms are secured treadles or foot rests
50 20. It will thus be seen that by pressing on the toe portion of these foot rests, in the manner that a treadle is operated, the lever arms will cause the bows to move upwards and the weight 15 operates them in their downward motion. On sounding box 4 the bow is
55 shown at the end of its upwards stroke, while on sounding box 5, the bow is at the end of its downward motion.

The fret boards 23 are pivoted at one end around bolts 24, which are in line with the top line of the bridges on the sounding boxes; these bolts are fastened to strips 25 which are secured to the sides of the sound
60 boxes. At their other ends the fret boards have one end of the strings 10 secured thereon which pass over the frets 26, and through a hole in bolt 27 and between and around washers 28 that are around bolts 29. By tightening nuts 30 on the said bolts, the strings are held
65 tight at this end, and by turning thumbnuts 31 the strings are drawn down and the tuning of the strings accomplished. At their other end the strings pass over the bridge 32 and are secured in the usual manner to the tail piece 33.
70

The fret boards are prevented from lateral displacement by pins 34 and are held in their normal position by the springs 35 that are secured on the necks 36 of the sound boxes. In Fig. 3, one of the fret boards is shown pressed down and in contact with plate 37,
75 which is secured on the neck of the sound box. By thus pressing down a fret board it will be seen that the string acts on its bridge as its fulcrum point and as the pivot point of the fret board is in line with the top line of the said bridge, it will be seen that the string retains
80 its tone when either in its raised condition or when lowered to contact with the bowing surface of the bow 9, as is shown in Fig. 3.

Sound box 4 has four strings thereon and four fret boards and each fret board has six frets thereon or more.
85 Sound box 5 is provided with six strings and six fret boards with three frets on each board.

The lever arms 38 are pivoted at one end to board 39 which is secured at its ends to board 14 and one of the standards 3; the pins 40 prevent lateral displacement
90 of the said lever arms; these arms are operated by the key arms 41, one end of which pivot in a slot in the lever arms, and near their other end they are pivoted to board 42 by pins 43. Thus it will be seen as shown in Fig. 4, by pressure on one of the keys 44, which are
95 secured on top of the said key arms, one of the lever arms will be made to fret a string with its felt covered face 45, and then to cause the fret board to act on its pivot until it comes to contact with plate 37, which brings the string into light engagement with the bow
100 and by additional pressure the sound box acts on its felt hinge 6 and against springs 8 and the loudness of the music is thereby controlled. The springs 46, return the keys and lever arms to their normal position and the felt cushions 47 and 49, prevent any possible
105 noise.

As shown in Fig. 1, the lever arms 38 are of different lengths and in order to cause an equal length of motion at their free ends, the key arms 41 are of different lengths also, some of which are shown broken away in
110 the bass part in order to more clearly show the arrangement underneath.

Having thus described my invention, what I claim is—

1. In a musical instrument, a bow 9, a holder clamp 12 therefor, rods 11 secured in the clamp in parallel relation to the bow, block 13 suitably mounted and having guide holes therein for the rods to move in, and a foot-operated mechanism for reciprocating the bow, consisting of a treadle 20, an arm 18, pulley 17 suitably journaled, cords 16 secured to the said arm and in engagement with said pulley and connected with the said rods, and a weight to cause the return of the bow.

2. In a musical instrument, the combination with a plurality of sound boxes, of a series of strings on each, a bow for each series of strings adapted for engagement therewith and for either independent, alternate, concurrent or simultaneous movement at different speeds and lengths of strokes from one another, and means for imparting motion to the bows.

3. In a musical instrument, the combination with a plurality of vibrating strings, of a pair of bows adapted for movement with respect thereto and in engagement therewith, and a pair of foot operated mechanisms adapted to move the bows either alternately, concurrently, independently or simultaneously at different speeds and lengths of strokes from one another.

4. In a musical instrument, the combination with a plurality of sounding boxes, of a series of strings on each box, a bow for each series of strings adapted for movement with respect thereto and for engagement therewith, a pair of foot operated mechanisms adapted to move the bows concurrently, independently, alternately, or simultaneously at different speeds and lengths of strokes from one another, and means for bringing the strips into engagement with the bows independent of one another.

5. In a musical instrument, the combination with a sound box, of a series of strings thereon, means for vibrating them, a bridge supporting the strings near one end, a bar for each string supporting its other end and pivoted in line with the bearing points of said strings on the bridge, and means for swinging each bar independent of the others from its pivot point to bring its strings into and out of engagement with its vibrating means.

6. In a musical instrument, the combination with a plurality of sound boxes, of a bridge on each, a series of strings on each box each string in contact with its bridge, means for vibrating the strings, and pivoted means for swinging each string independent of the others from its bridge as its fulcrum point into and out of engagement with its vibrating means.

7. In a musical instrument, the combination with a plurality of sounding boxes, of a series of strings on each box, a bow for each series of strings adapted for movement with respect thereto and for engagement therewith, a pair of foot operated mechanisms adapted to move the bows either concurrently, independently, alternately or simultaneously at different speeds and lengths of strokes from one another, a bridge for each sound box adapted to be in contact with its strings, pivoted means for swinging each string independent of the others from its bridge as its fulcrum point into and out of engagement with its bow, and key operated means for fretting and swinging the strings.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES L. FLINDT.

Witnesses:

JOS. C. LEAL,

HOMER E. FLINDT.