

No. 646,864.

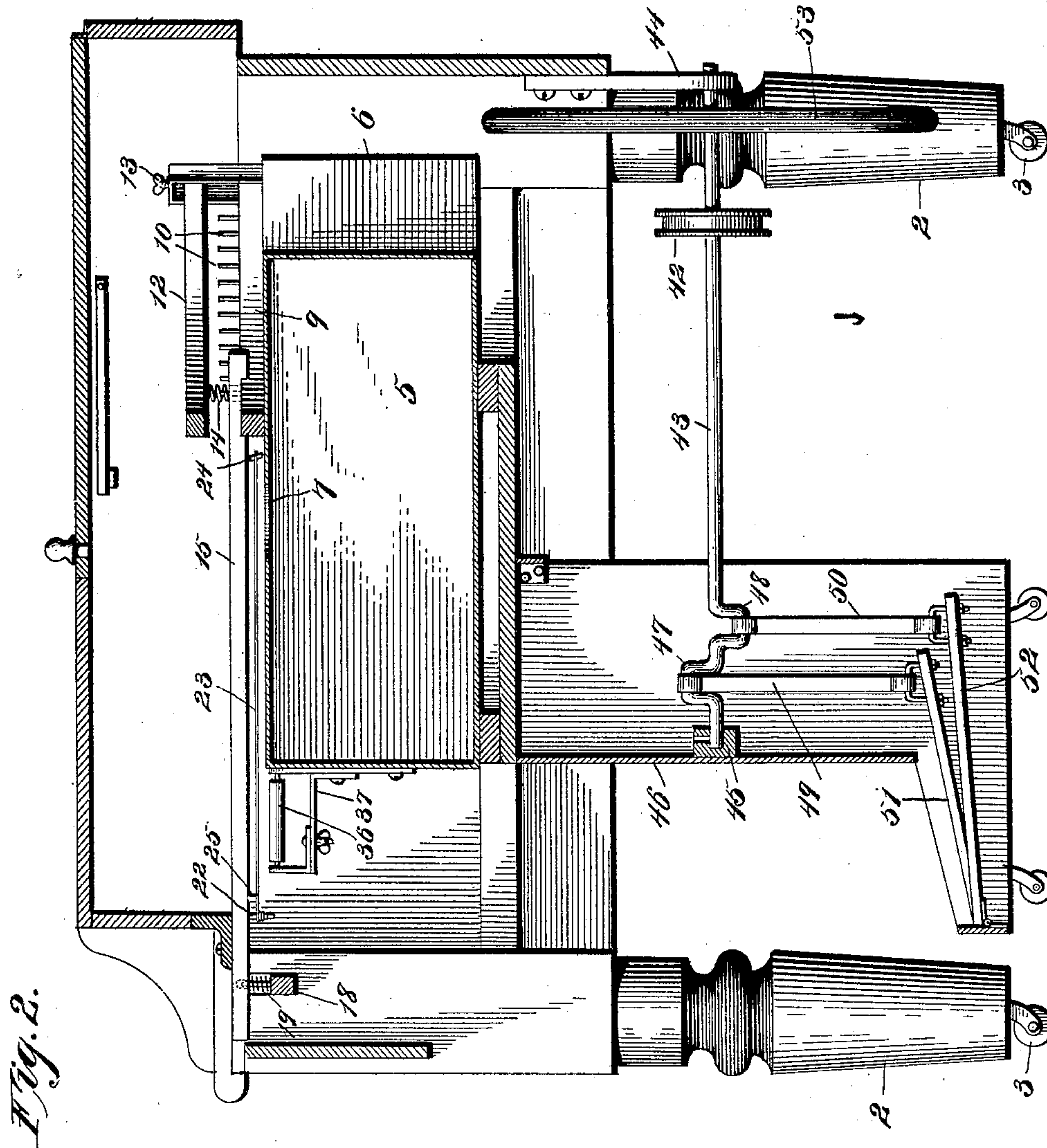
Patented Apr. 3, 1900.

N. E. NELSON.
VIOLIN ORGAN.

(Application filed July 31, 1899.)

(No Model.)

4 Sheets—Sheet 2.



WITNESSES

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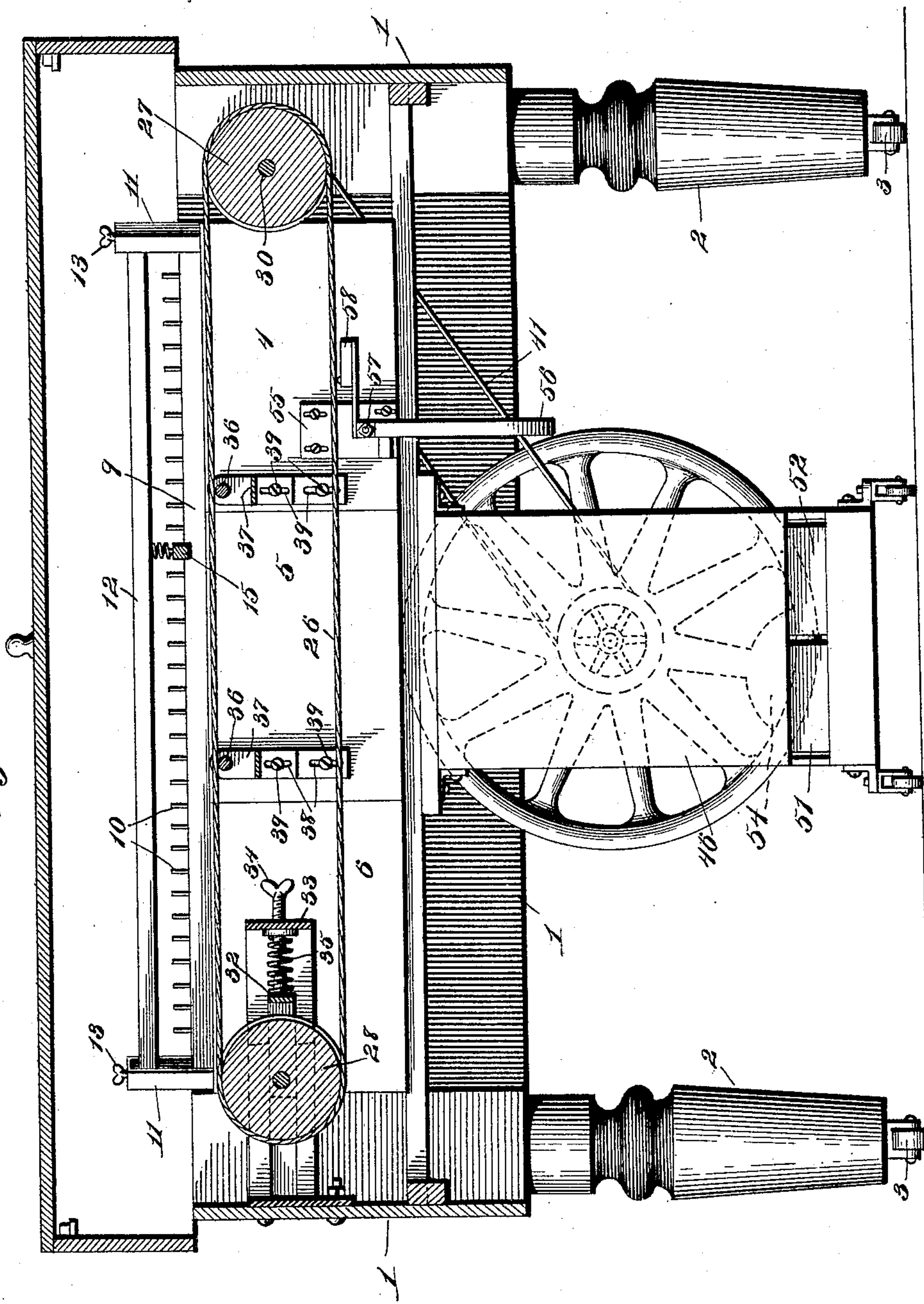
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Fig. 3.



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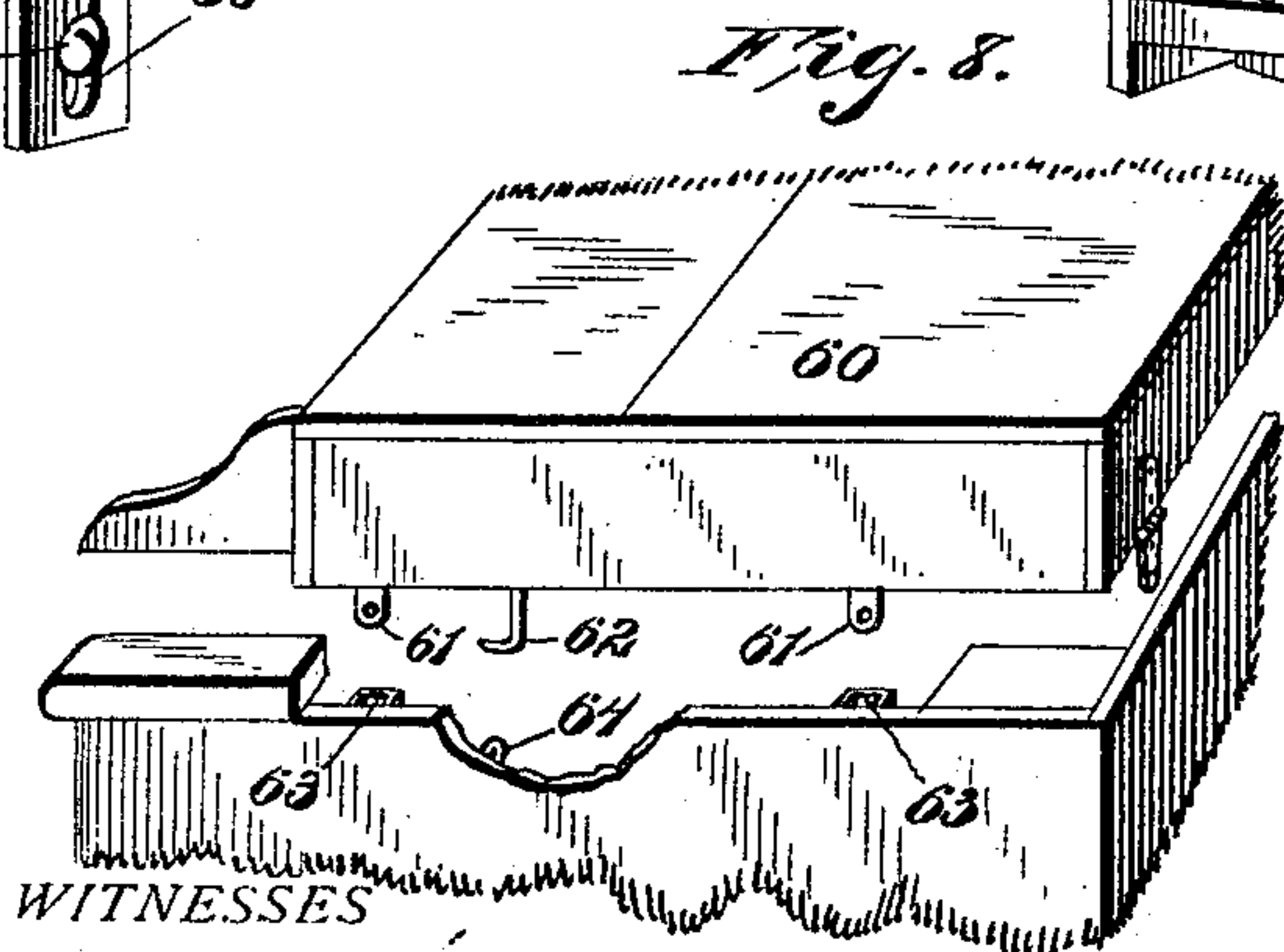
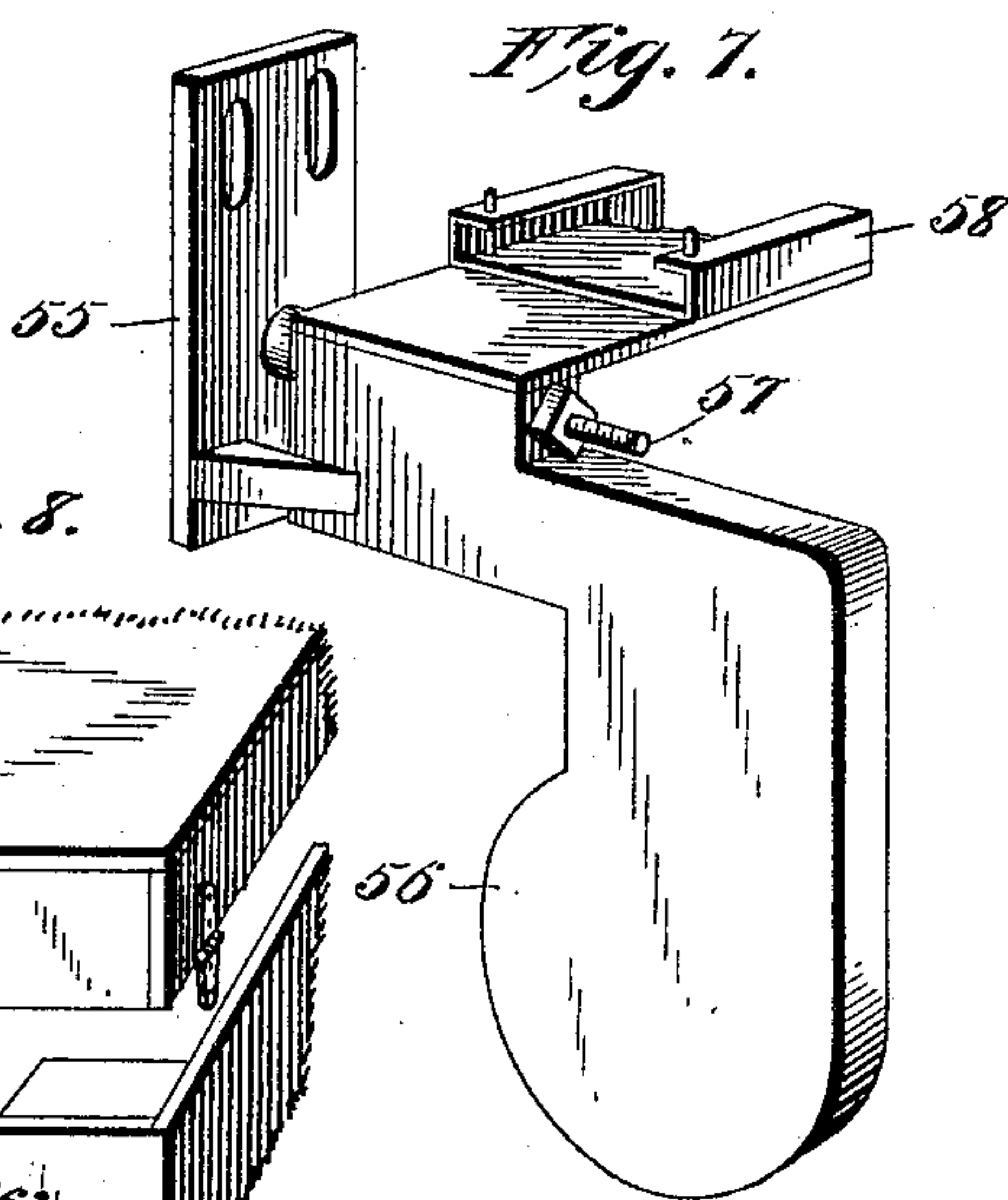
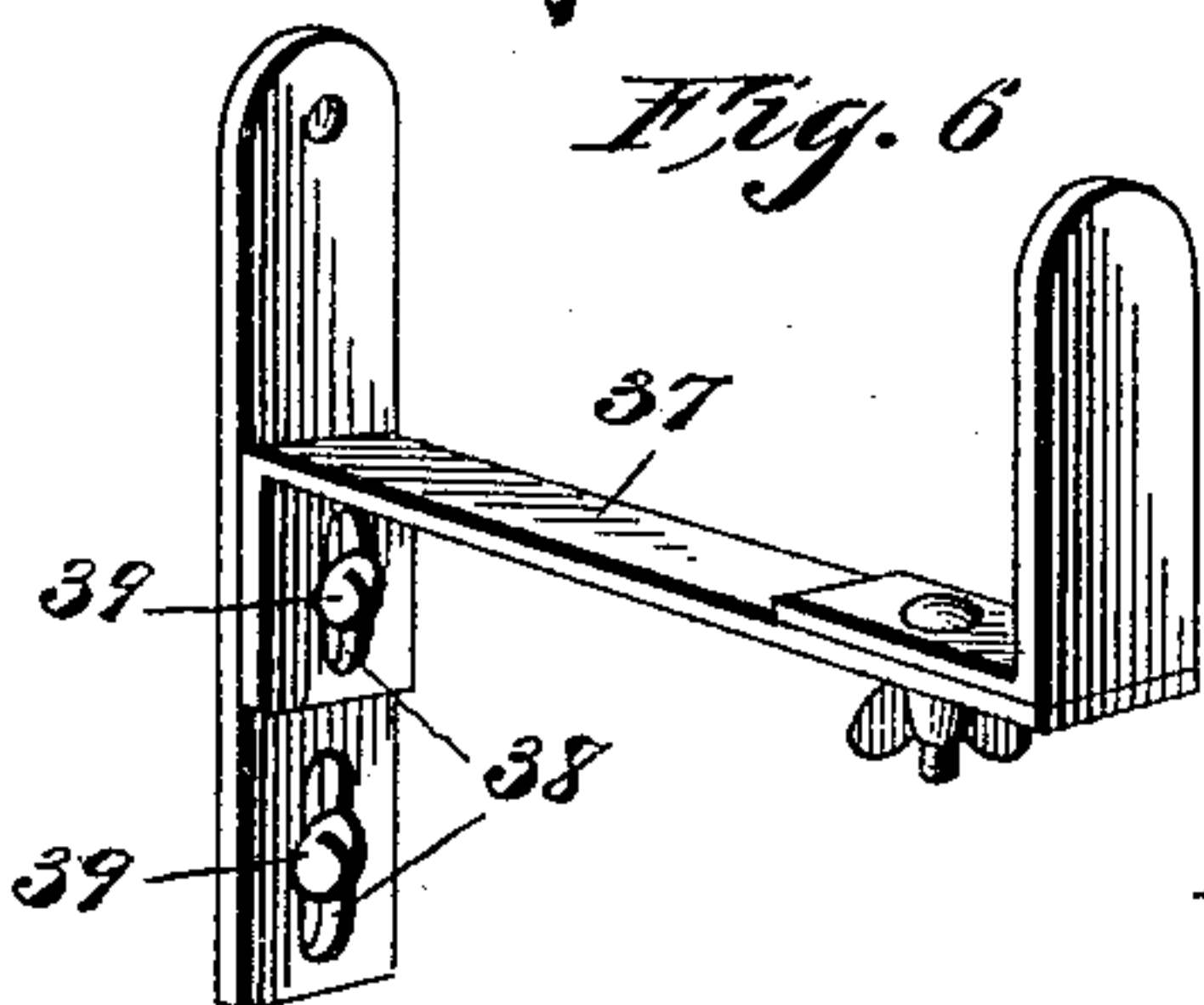
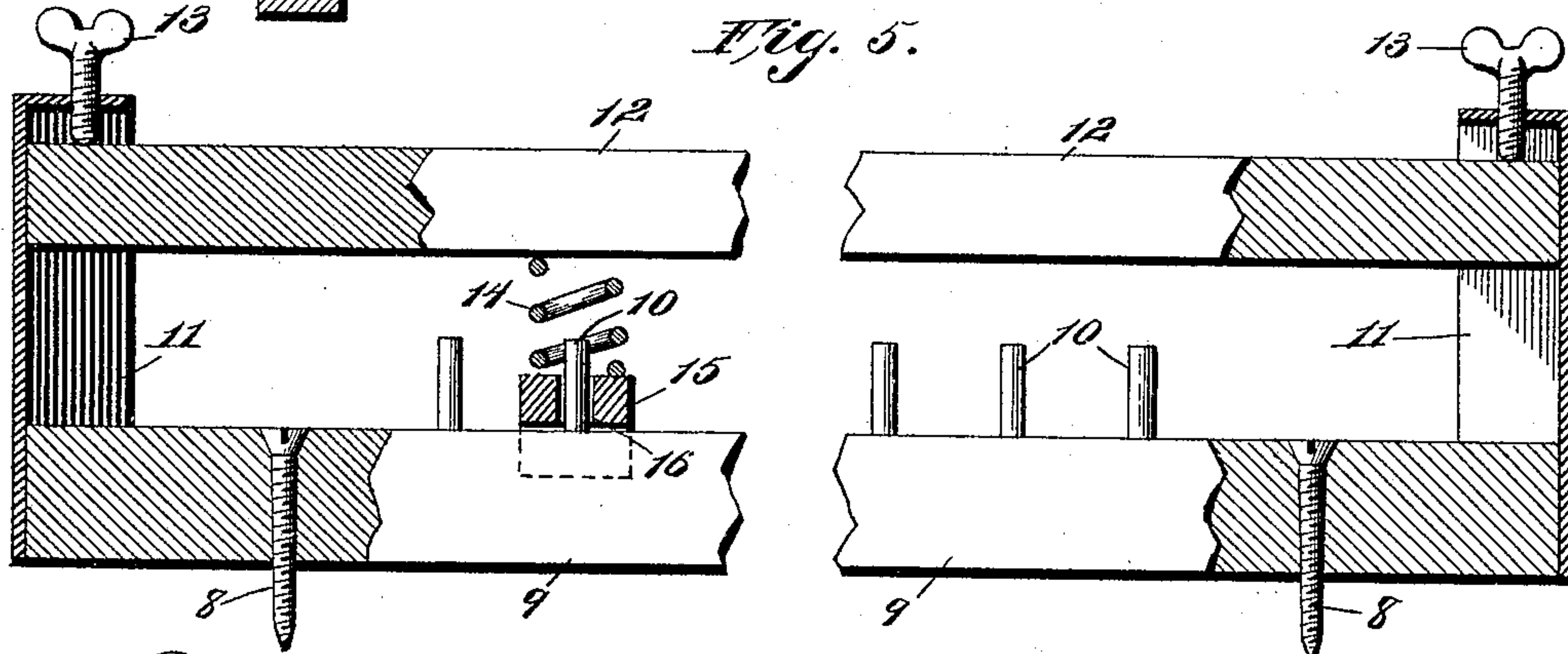
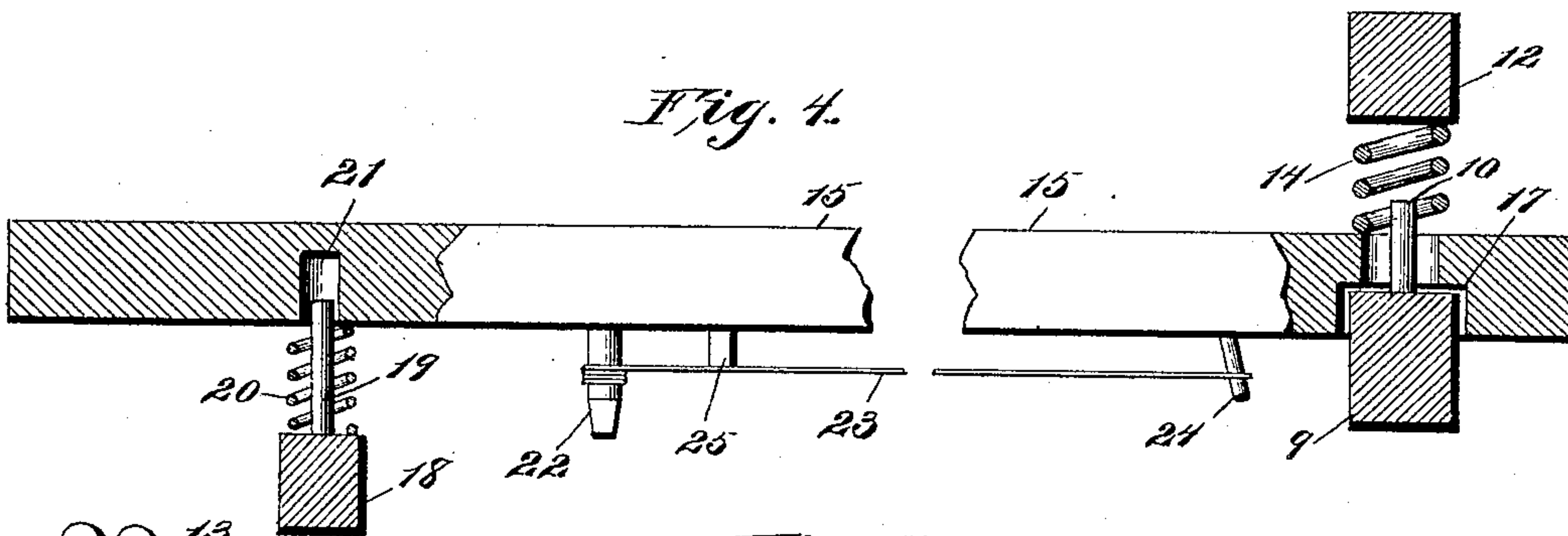
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UNITED STATES PATENT OFFICE.

NELS EPHRAIM NELSON, OF SWEDE HOME, NEBRASKA.

VIOLIN-ORGAN.

SPECIFICATION forming part of Letters Patent No. 646,864, dated April 3, 1900.

Application filed July 31, 1899. Serial No. 725,610. (No model.)

To all whom it may concern:

Be it known that I, NELS EPHRAIM NELSON, a citizen of the United States, residing at Swede Home, in the county of Polk and State of Nebraska, have invented certain new and useful Improvements in Violin-Organs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to what I term a "violin-organ;" and its primary object is to provide an instrument for producing violin-music by the manipulation of keys similar to those of an organ or piano in connection with pedals.

The invention includes mechanism for operating the bow of the instrument, means for tightening the bow, devices for tightening or tuning the strings, and, generally, all of the details necessary to a complete and operative instrument.

The characteristic features of the invention will be fully described hereinafter and defined in the appended claims, in connection with the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of an instrument embodying my invention. Fig. 2 is a transverse section on the line 2 2 of Fig. 1 with the cover (not shown in Fig. 1) in place. Fig. 3 is a longitudinal vertical section on the line 3 3 of Fig. 1. Fig. 4 is a detail side elevation of one of the keys, with its attachments. Fig. 5 is a sectional view of the bridge of the instrument. Figs. 6 and 7 are respectively detail perspective views of the bow leveler or support and the rosin-holder; and Fig. 8 is a detail view of a modification, showing how the cover of the instrument may be removably secured in place.

The reference-numeral 1 represents the frame or casing of the instrument, supported by legs 2, the latter being removably secured, as is usual, and provided with casters or rollers 3. Within the casing 1 are located a plurality of sound-boxes (designated as 4, 5, and 6) and graduated in length and provided with openings 7, as shown. Arranged diagonally

upon said sound-boxes and secured thereto by screws 8 is a bridge 9, from which project a series of pins 10, corresponding in number to the number of keys employed. At each end of the bridge 9 is located a bracket or housing 11, within which are adjustably secured the ends of a bar 12, constituting a key-tightener and adapted to be depressed by thumb-screws 13 against the tension of a series of coil-springs 14, interposed between the keys 15 and the bar 12, (see Fig. 5,) said springs 14 encircling the pins 10, which latter extend through openings 16 in the keys. For the sake of clearness I have shown only one of the keys 15 and will now describe its construction and relation to the other elements of the instrument, it of course being understood that the description of one key and its attachments will apply equally to all of the others employed in the complete instrument. The under side of the rear end of the key is transversely recessed at the point 17 to adapt it to fit over the bridge 9, where it is held by the bar 12 and spring 14, but with sufficient play to enable it to be properly operated. The front end of the key is supported upon a transverse bar or footboard 18, secured to the front legs of the frame, as shown in Fig. 1, and provided with a series of pegs 19, around each of which is a spiral spring 20. The peg 19 is adapted to enter an opening 21, formed in the under side of the key, as shown in Fig. 4.

From the under side of the key 15 depends a tuning-peg 22, to which is secured one end of a silver-plated steel string 23, the rear end of which is attached to a peg 24, depending from the key near the bridge 9. A small bridge 25 is interposed between the key and the string 23 to insure clearness of tone and to maintain all of the strings at the proper height. The peg 22 is adapted to be turned by a suitable wrench to wind and unwind the string for tuning purposes. With the keys constructed as thus described I employ a bow comprising an endless belt 26, made up of independent threads or strands. I preferably use silk thread known as "buttonhole-twist" for the bow; but the invention is not restricted to any particular material for this purpose, and, if desired, a specially-woven belt with threads running lengthwise on one side might

be employed. The belt is supported upon rollers 27 and 28, supported within the casing and having parallel peripheral grooves 29, each groove being adapted to receive one thread, the ends being tied to form an endless thread and the several threads collectively forming the endless bow. The roller 27 is mounted upon a horizontal shaft 30, supported in bearings 31, fixed to the legs, as shown in Fig. 1, while the other roller 28 is supported in bearings of a yoke 32, having a sliding support in a bracket 33, secured to the adjacent side of the casing. A screw 34, extending through the bracket and provided with a coil-spring 35, bears against the yoke 32 and constitutes means for tightening the bow by moving the roller 28, and thus stretching the threads.

In order to prevent sagging of the bow, I provide rollers 36, supported in bracket-bearings 37. These rollers are preferably of rubber or like yielding material to prevent abrading the threads, and they are arranged at right angles to the belt and rest below the upper ply of the belt, as best shown in Fig. 3. The brackets 37, as shown in detail in Fig. 6, are formed with vertically-elongated slots 38 and are held by screws 39, whereby the rollers may be adjusted as desired.

Upon the rear end of the shaft 30 is mounted a pulley 40, connected by an endless band 41 with a pulley 42, mounted upon a central shaft 43, supported at its rear end in a bearing 44 and at its front end by a bearing 45, secured to the front wall of the pedal-box 46. The shaft is formed near its front end with oppositely-disposed cranks 47 and 48, which are connected by straps 49 and 50 to treadles 51 and 52, pivoted at their forward ends within the pedal-box.

Upon the rear end of the shaft 43 is mounted a balance-wheel 53, provided with a peripheral weight at the point 54 to balance the shaft 43 and normally hold the pedals level with each other.

For the purpose of applying rosin to the endless bow I provide a movable holder (shown in Figs. 1 and 3 and in detail in Fig. 7) and comprising a plate 55, secured to the front of the sound-box 4, a knee-plate 56, pivotally secured to the plate 55 by a bolt 57, and a clamp 58, which receives a cake or block 59 of rosin. By pushing the plate 56 with the knee the rosin is forced upwardly into contact with the bow-belt, causing the latter to take up the rosin as may be found necessary.

The operation of the instrument as above described is as follows: The depression of the keys will bring the wires attached thereto into position to be operated upon by the bow, the latter being revolved upon its rollers by the movement of the pedals, as will be clear from the description and accompanying illustrations.

The invention is not limited, of course, to any particular number of keys; but it is designed to give sufficient range to enable the

instrument to produce the various tones of a violin, the key manipulation representing the fingering and the pedal movements the bow action.

Various modifications may be made in the detail of construction without departing from the spirit of my invention, and I would therefore have it understood that I reserve the right to make all such changes and variations in construction as may fall within the scope of the following claims.

In Fig. 8 the cover 60 is shown as provided with depending lugs 61 and a hook 62, which respectively enter staples 63 and a hook 64, projecting from the casing to detachably secure the cover.

I claim—

1. In a violin-organ, the combination with keys each provided on its under side with a violin-string, of a bow comprising an endless belt, and mechanism for revolving the bow, consisting of pedals and gearing operated thereby.

2. In a violin-organ, the combination with a framework or casing, of sound-boxes arranged therein; a bridge extending across the sound-boxes; keys provided with strings on their under sides; means for tuning said strings; means for tightening the keys in their relation to the bridge; an endless belt constituting the bow; rollers for supporting the bow; pedals for operating the bow; and shafts and gearing between the pedals and bow.

3. In a violin-organ, the combination with a frame or casing, of sound-boxes arranged therein; a bridge extending across said boxes; keys loosely connected to the bridge; an endless belt supported upon rollers and constituting the bow; means for tightening the bow; adjustable supports for preventing sagging of the bow; a shaft carrying one of the bow-supporting rollers; a central shaft formed with cranks and connected with the roller-shaft; a balance-wheel on the central shaft, and connections between the cranks and pedals.

4. In a violin-organ, the combination with keys provided with violin-strings, of an endless belt constituting the bow of the instrument; means for supporting and revolving said belt; and a rosin-holder adapted to be operated by the knee of the performer.

5. In a violin-organ, the combination with a revolving endless belt constituting the bow of the instrument; of spring-controlled keys, each provided on its under side with a violin-string, and a bridge interposed between the key and string.

6. In a violin-organ, the combination with a framework or casing, of keys provided with strings; an endless belt constituting the bow of the instrument; and means for supporting and revolving said belt comprising a roller fixed upon a shaft; a central shaft formed with cranks; a balance-wheel and a pulley on said central shaft; a belt connecting the two shafts; pedals connected to the cranks of the

central shaft; and a roller supported in an adjustable yoke.

5 7. In a violin-organ, the combination with a framework or casing, of sound-boxes of varying size arranged within the casing; a bridge extending diagonally across said boxes, and provided with a series of pins and spiral springs; keys supported on said bridge and provided with violin-strings; a tightening-bar
10 for said keys above the bridge; an endless belt constituting the bow of the instrument; and means for supporting, revolving, and tightening said belt.

8. In a violin-organ, the combination with

a frame or casing, of sound-boxes arranged 15 therein; a bridge extending across said boxes; a key-footboard for supporting the front ends of the keys; keys provided with violin-strings; an endless belt forming the bow; a pedal-box at the front of the instrument; and means for 20 revolving the endless belt.

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

NELS EPHRAIM NELSON.

Witnesses:

E. P. NELSON,

SUSANNA L. NELSON.