

No. 637,273.

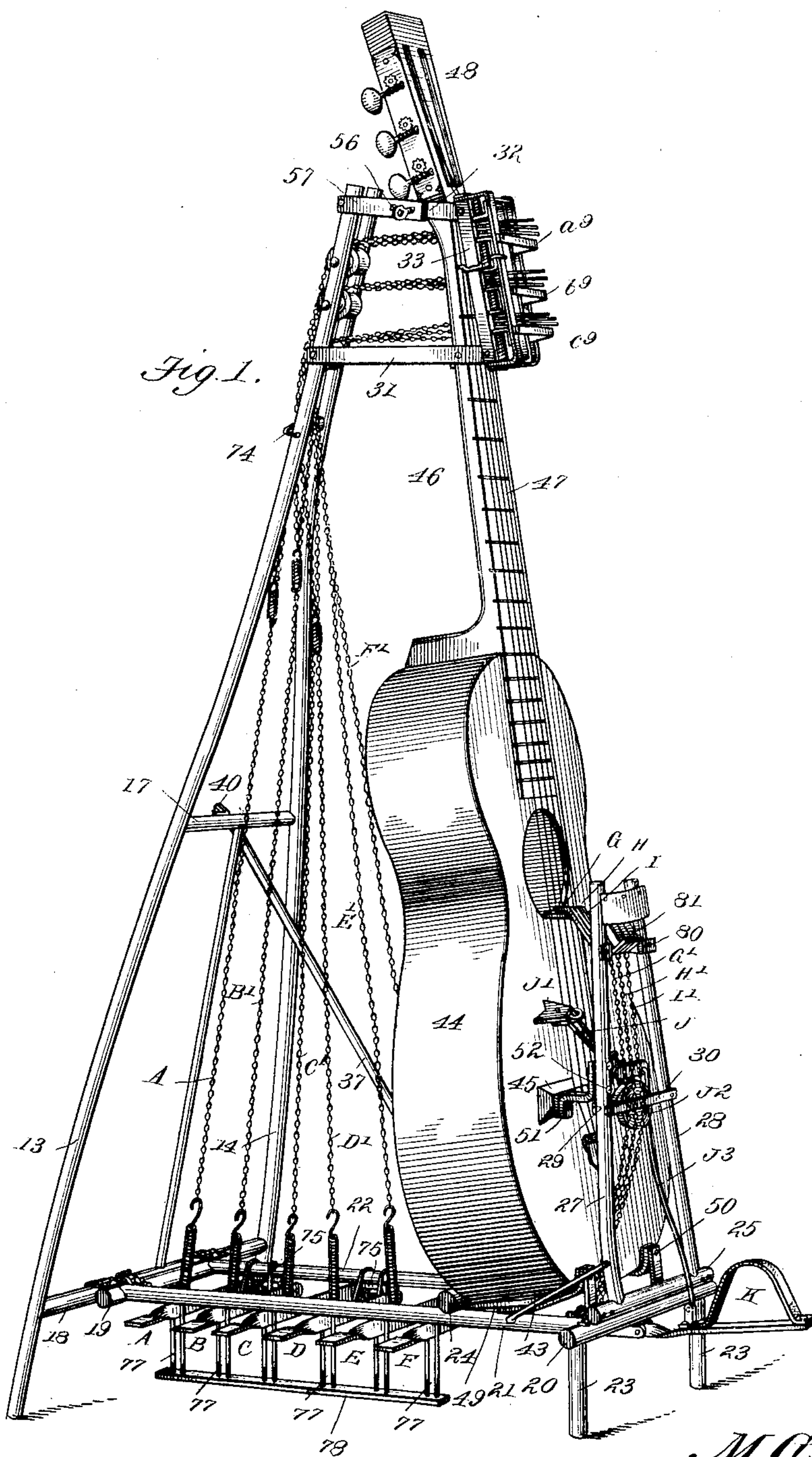
Patented Nov. 21, 1899.

M. G. MILLER.
GUITAR SUPPORT AND PLAYER.

(Application filed Apr. 22, 1899.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses

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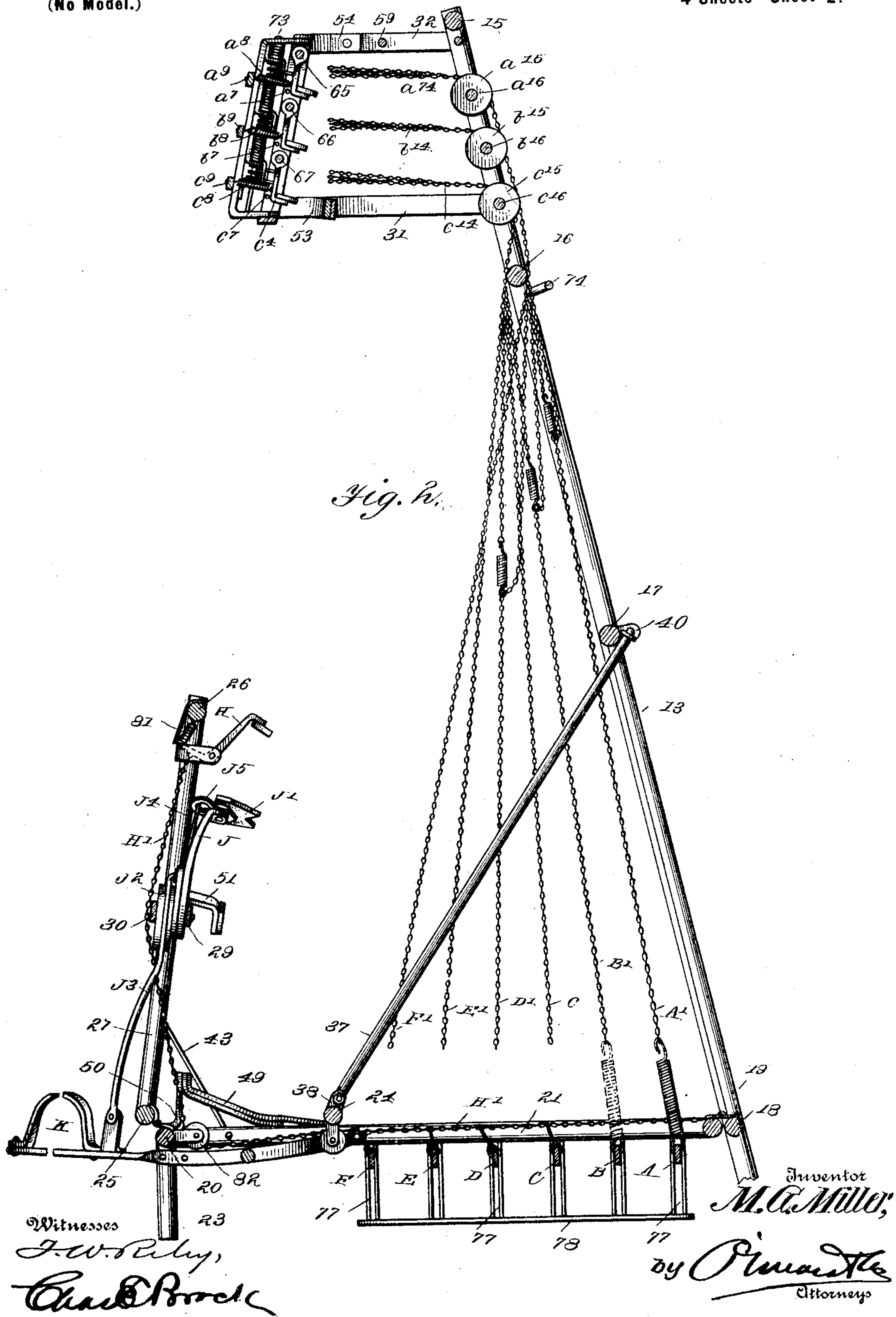
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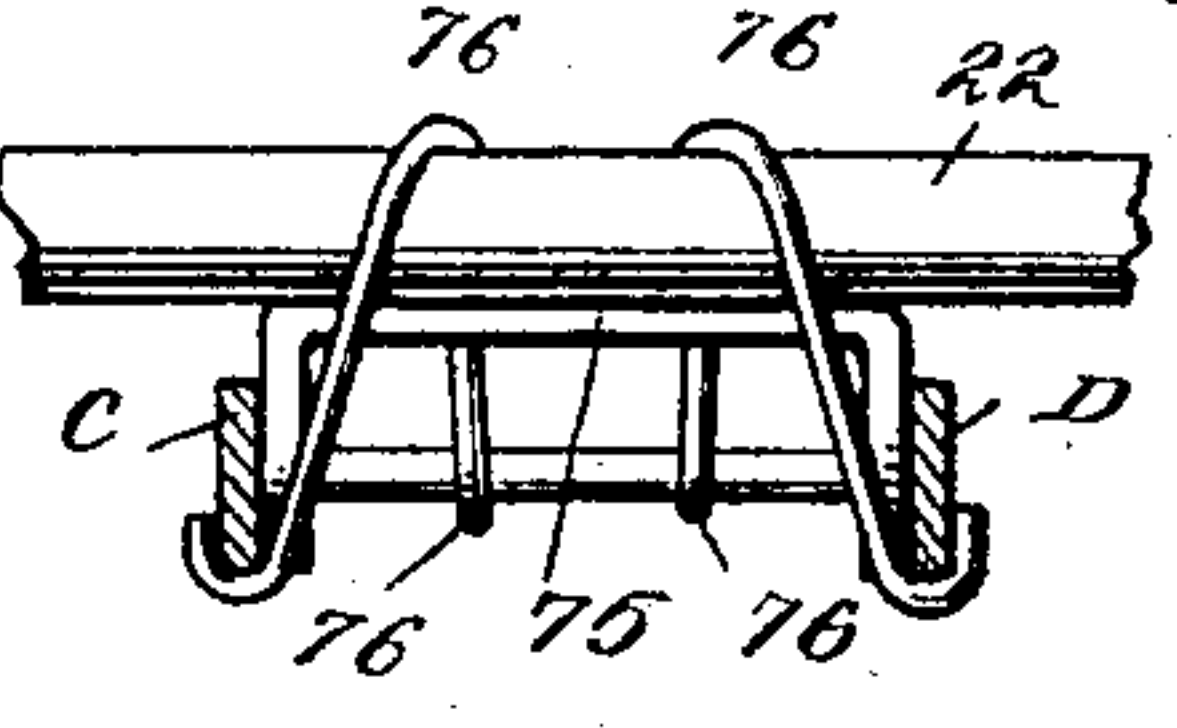
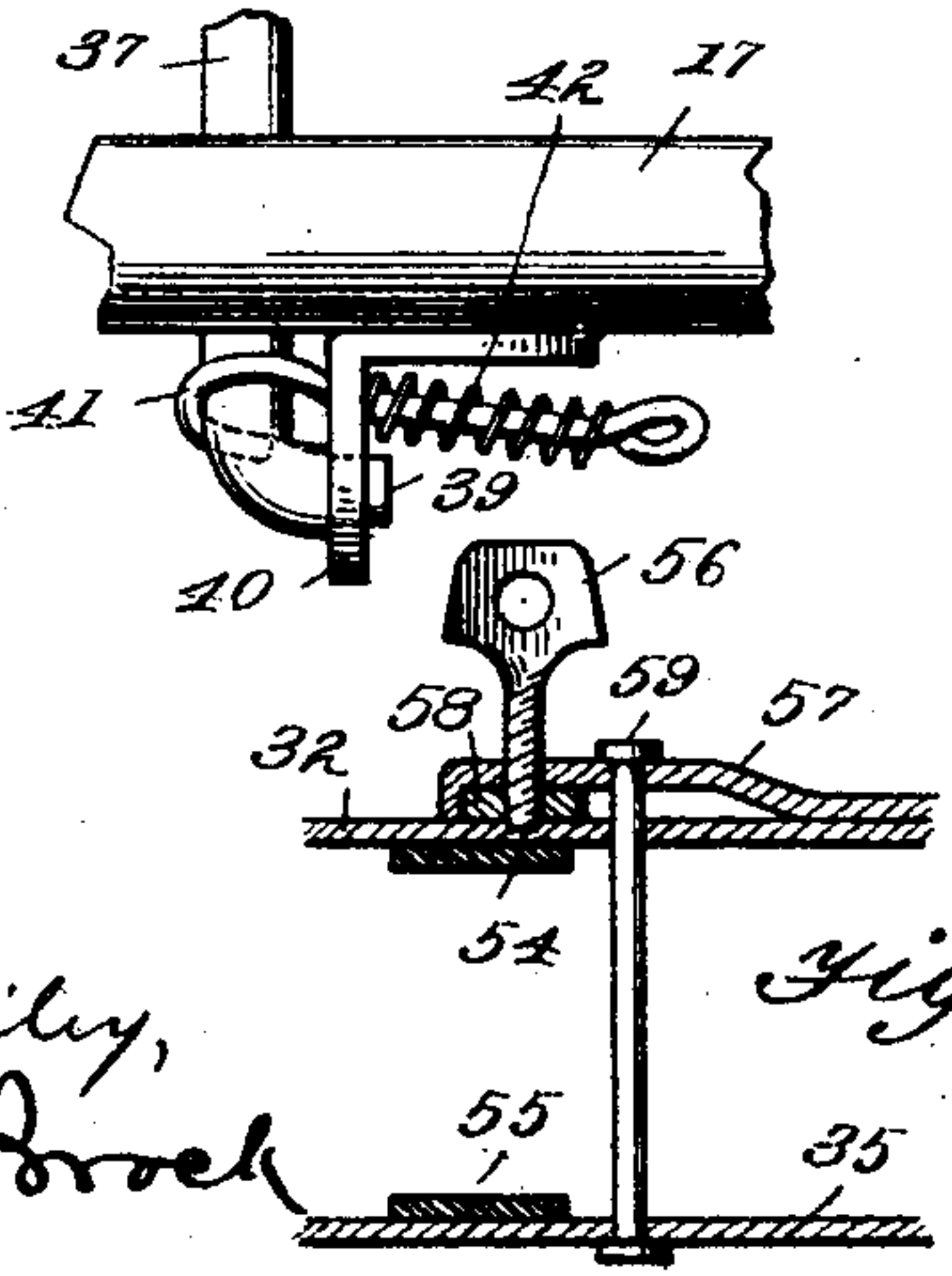
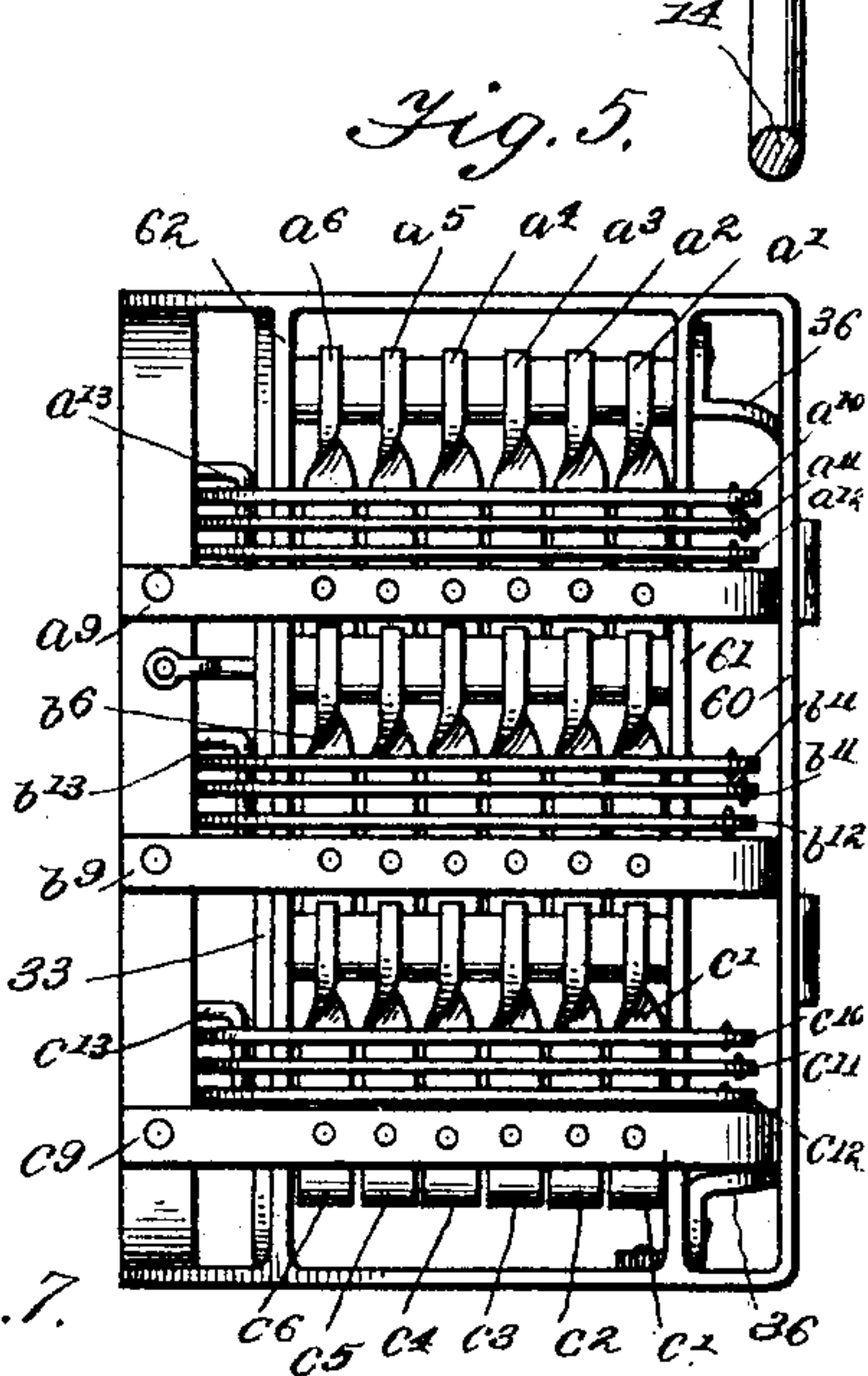
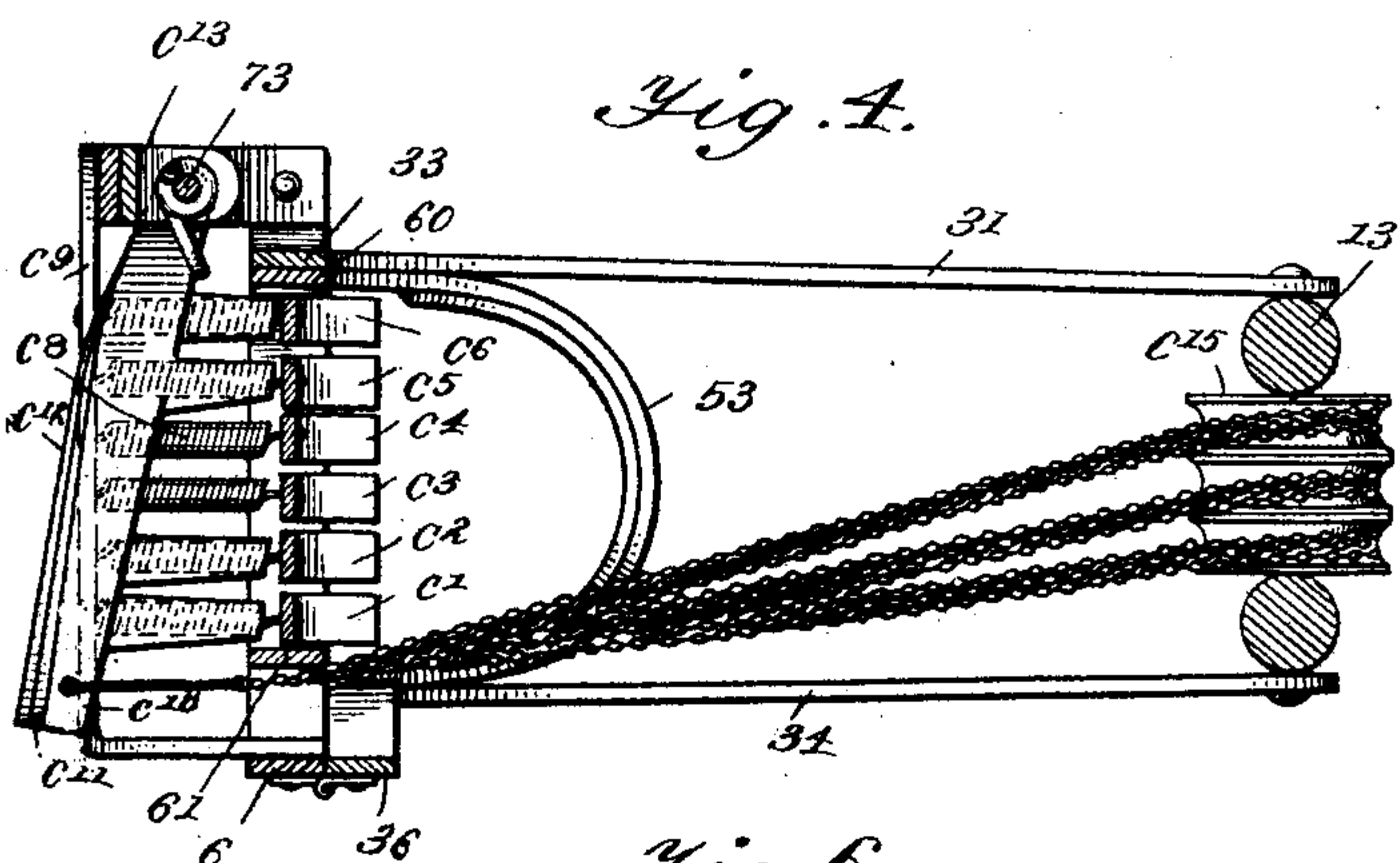
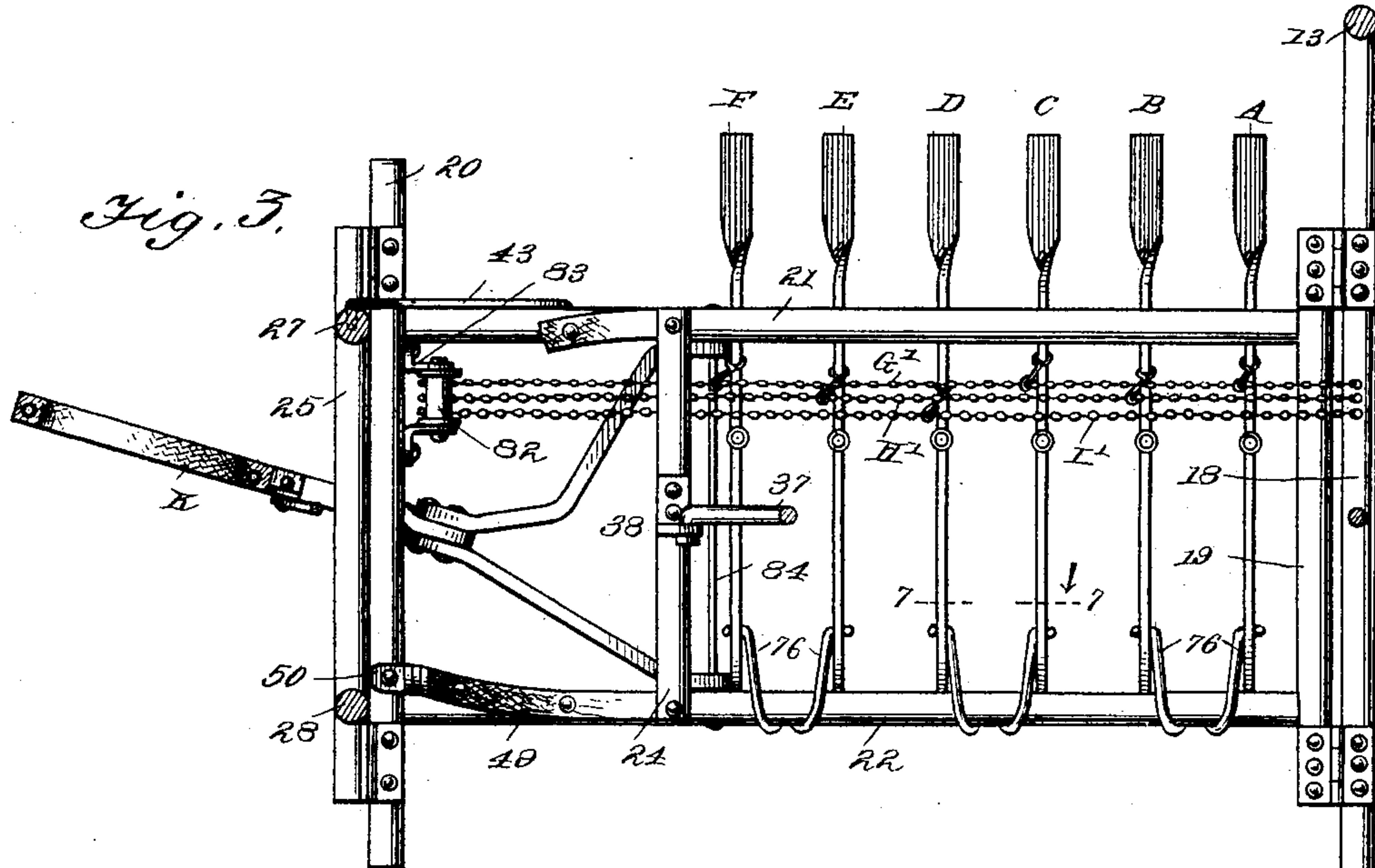


Fig. 8.

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Fig. 9.

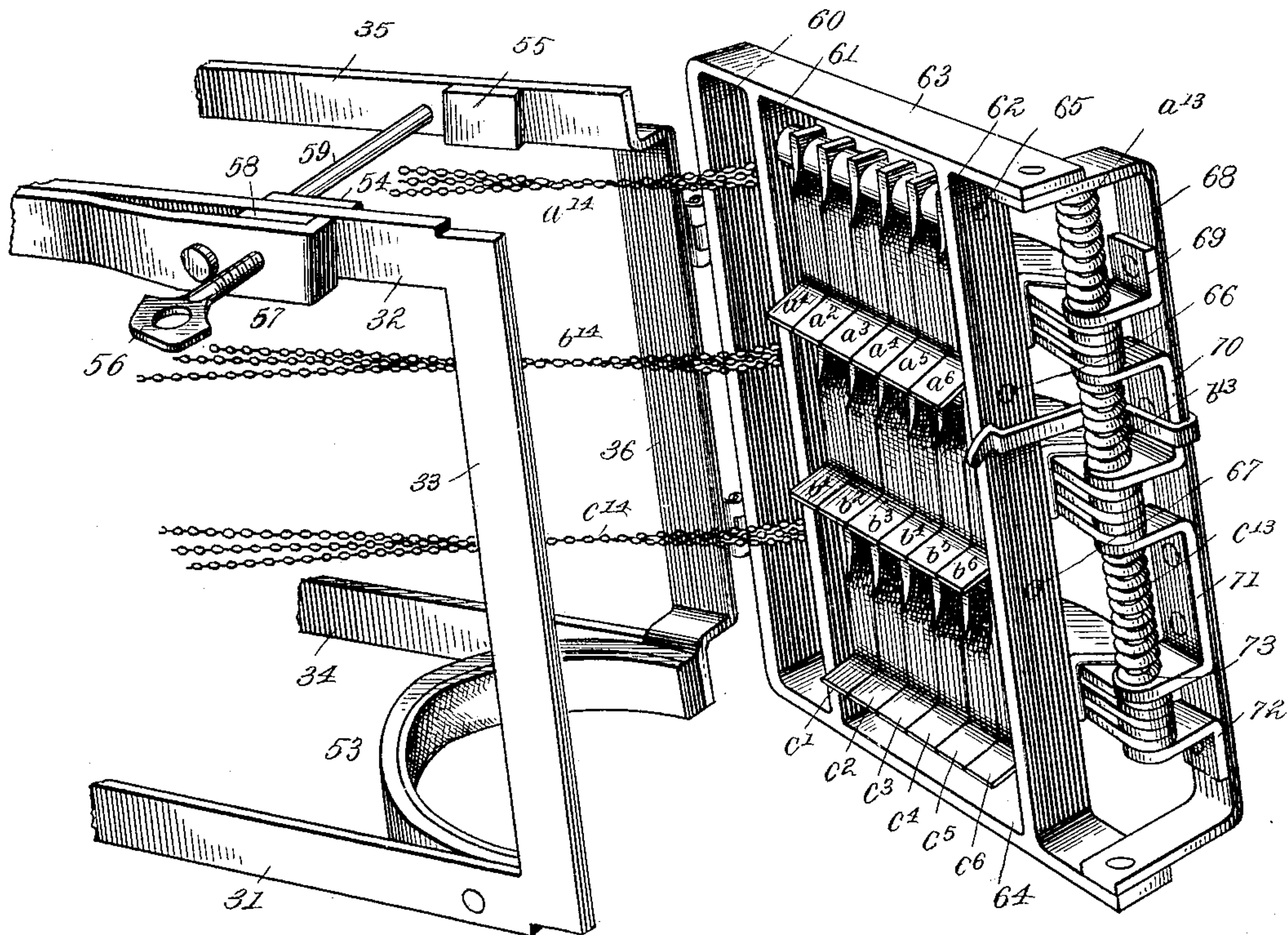


Fig. 10.

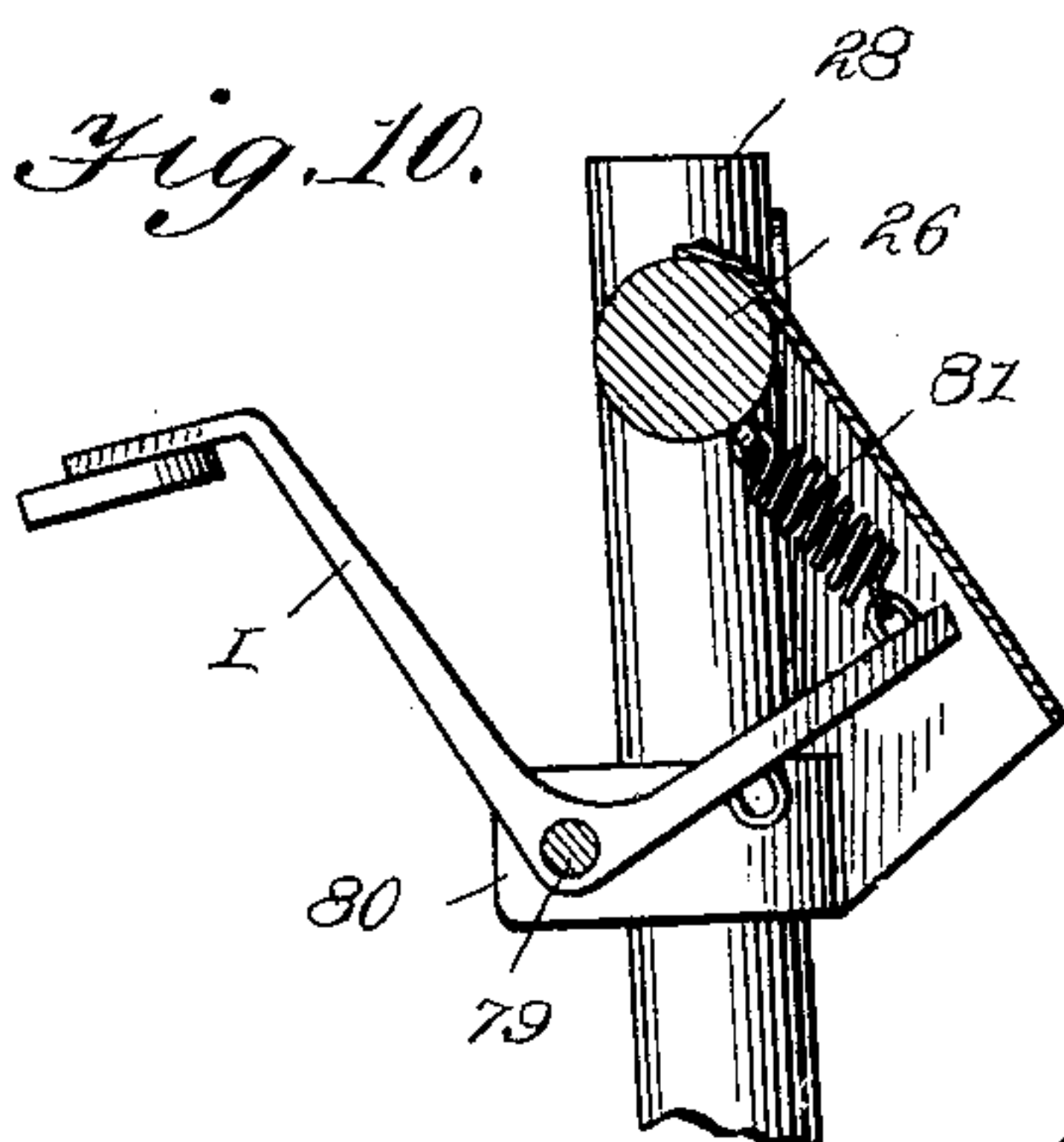


Fig. 11.

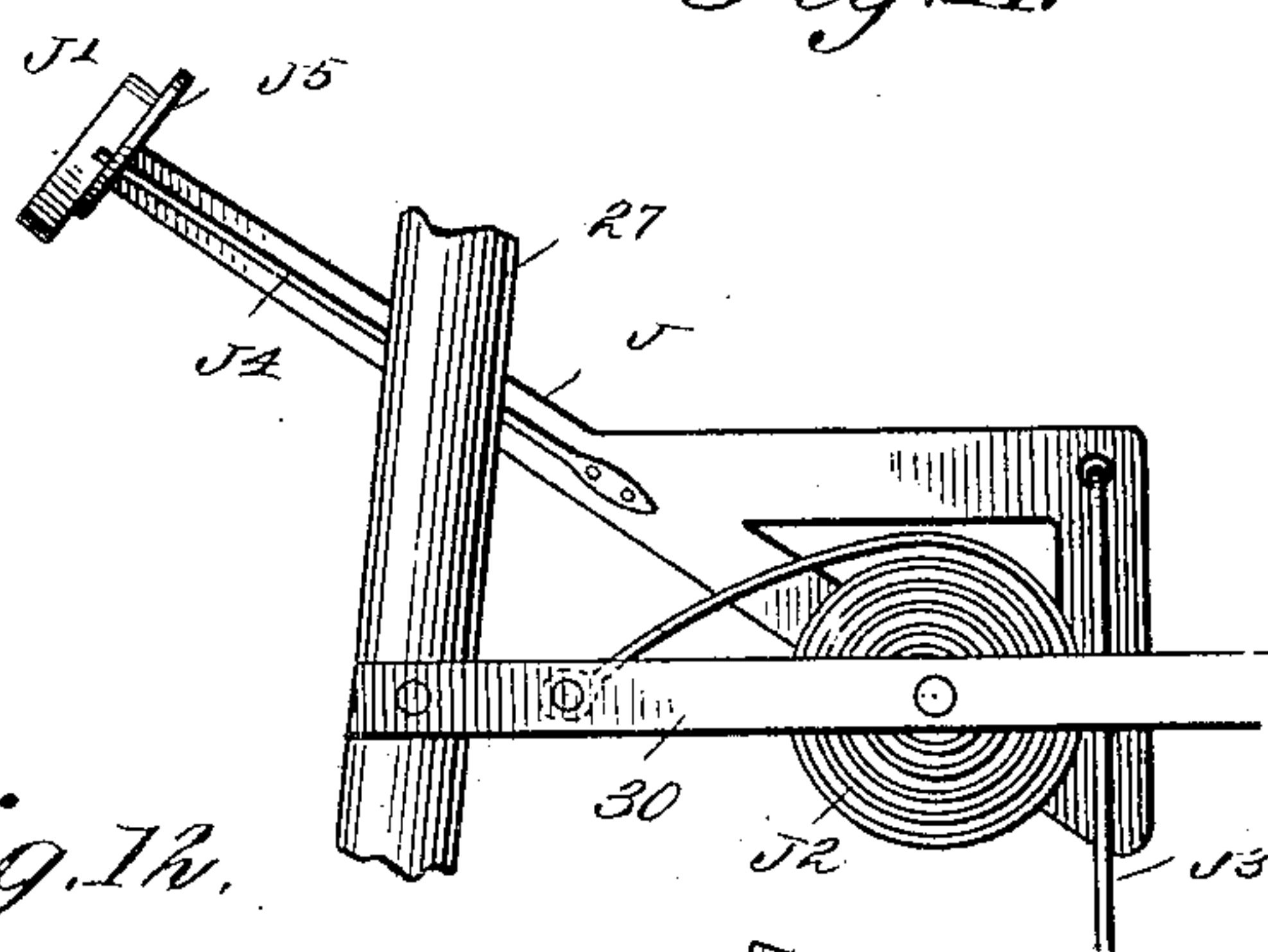
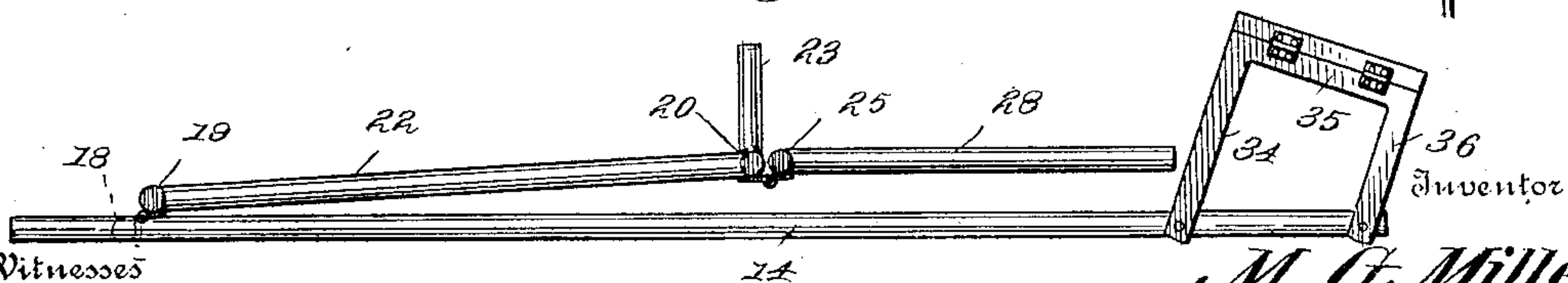


Fig. 12.



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UNITED STATES PATENT OFFICE.

MORTON G. MILLER, OF SUMMIT GROVE, INDIANA.

GUITAR SUPPORT AND PLAYER.

SPECIFICATION forming part of Letters Patent No. 637,273, dated November 21, 1899.

Application filed April 22, 1899. Serial No. 714,082. (No model.)

To all whom it may concern:

Be it known that I, MORTON G. MILLER, a citizen of the United States, residing at Summit Grove, in the county of Vermilion and State of Indiana, have invented a new and useful Guitar Support and Player, of which the following is a specification.

My invention is in the nature of a machine in which to support and play a guitar without using the hands, the object being to provide improved means whereby accompaniments may be played upon a guitar by a person playing some other instrument with the hands or by a person without hands.

With this object in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described, and afterward specifically pointed out in the appended claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, reference being had to the accompanying drawings, forming part hereof, in which—

Figure 1 is a perspective view of a machine constructed in accordance with my invention, with a guitar in position therein, in position for practical operation. Fig. 2 is a vertical sectional view on a plane cutting through the machine from side to side, parts being omitted and other parts broken out to render the illustration clearer and reduce the dimensions of the figure. Fig. 3 is a horizontal sectional view on a plane cutting through the machine a short distance above the base-frame, looking downward. Fig. 4 is a detail horizontal sectional view on a plane cutting through the head of the machine just above the lower set of chain-pulleys. Fig. 5 is a view in elevation of the front of the head of the machine. Fig. 6 is a detail fragmentary view, in plan, illustrating the means for securing and releasing the upper end of the main brace-rod. Fig. 7 is a detail sectional view on the plane indicated by the dotted line 7 7 of Fig. 3. Fig. 8 is a fragmentary detail view, in horizontal section, of the head-clamp-operating mechanism. Fig. 9 is a detail perspective view, on a larger scale, illustrating the rear end of the stationary head-frame, with the

hinged head-frame thrown open to expose the interior constructions. Fig. 10 is a detail sectional view illustrating the arrangement of the mutes for the bass-strings. Fig. 11 is a fragmentary detail view, in elevation, illustrating the striker or sounder and its mechanism. Fig. 12 is a view in rear elevation, on a reduced scale, of the frame stripped of all mechanisms in its folded position.

Like letters and numerals of reference mark the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings by letters and numerals, 13 14 indicate two uprights, preferably of light tubular construction, set about two inches apart at the top and spreading to about sixteen or eighteen inches apart at the bottom, such dimensions being those to suit a machine for supporting and playing an ordinary guitar, but may be changed at will to suit differently-sized instruments. These uprights are connected by horizontal cross-bars 15, 16, 17, and 18, of substantially the same material and diameter, located, respectively, at the top, about five or six inches below the top, about midway, and near the bottom of the uprights, the uprights being about three feet long in an ordinary machine.

Hinged to the cross-bar 18 is a base-frame, of substantially the same material, composed of a cross-bar 19, to which the hinges are secured, a similar cross-bar 20 at the opposite end of the frame, and connecting-bars 21 22 between said cross-bars. The cross-bar 20 is provided with legs 23 to support the frame in a level position, and the connecting-bars are themselves connected by an intermediate cross-bar 24.

Hinged to the cross-bar 20 is a frame which I shall denominate the "body-frame," consisting of lower and upper cross-bars 25 and 26, uprights 27 and 28, and intermediate cross-bars 29 and 30, and projecting from the main uprights 13 and 14, near their upper ends, are horizontal side frames, one consisting of horizontal bars 31 and 32 and connecting-upright 33 and the other of horizontal bars 34 and 35 and connecting-upright 36, the two constituting what I denominate the "head-frame."

The whole frame as described stands upright when holding a guitar, as shown in Figs. 1 and 2, but may be folded into the position

shown in Fig. 12 for storage or transportation. When in upright position, the main frame is thus maintained by a brace 37, hinged to a bracket 38, secured on cross-bar 24 and having its outer or upper end hooked, as at 39, Fig. 6, to engage in a hole in a bracket 40, secured to cross-bar 17, being held in engagement by means of a hook 41, passing through the bracket and actuated by a spring 42. The body-frame at the opposite end of the base-frame is held upright by a hook-brace 43, pivotally attached to horizontal bar 21 and engaging in an opening in upright 27.

The guitar illustrated in Fig. 1 (the body being marked 44, the bridge 45, the neck 46, the strings 47, and the head 48) rests when in position to be played with its lower end upon cushioned or leather-lined bars 49, secured on top of bars 21 and 22 of the base-frame, the back edge resting against cross-bar 24 of the base-frame and its front edge against upturned ends of the cushioned bars 49, upheld by brackets 50, secured to cross-bar 20 of the body-frame. A cushioned bracket 51, secured upon the upright 27 of the body-frame, presses against the bridge 45 and is adjustable for greater or less pressure by means of a screw 52. The neck 46 rests against a curved cushioned bar 53, secured between bars 31 and 34 of the head-frame, and is clamped between cushioned blocks 54 and 55 on the inner faces of bars 32 and 35. The bar 35 is rigid, but the bar 32 is pressed inward by a screw 56, passing through a clamp-bar 57 and nut 58, the clamp-bar being rigidly connected with bar 35 by a long rivet 59. The head 48 projects above the head-frame, as shown, leaving the keys accessible for tuning the guitar without removing it from the machine.

Hinged to upright connecting-bar 36 of the head-frame is what I will denominate the "finger-frame," for the reason that it carries mechanism for doing the work of the fingers of the left hand or the fingering of the strings. The finger-frame comprises the hinge-upright 60, the inner upright 61, the outer upright 62, the top bar 63, and the bottom bar 64, and a suitable locking-catch. (Best illustrated in Figs. 5 and 9.) Pivotally mounted on horizontal rods 65, 66, and 67, secured in uprights 61 and 62, are three horizontal series of fingers, each series consisting of six fingers, (marked, respectively, $a' a^2 a^3 a^4 a^5 a^6$, $b' b^2 b^3 b^4 b^5 b^6$, $c' c^2 c^3 c^4 c^5 c^6$,) the corresponding fingers of each series being in vertical alignment and each finger being provided with a leather or rubber cushion at its lower outer end. These fingers are arranged so that either of any three corresponding vertically-aligned fingers may be brought into forcible contact with the corresponding string of the guitar, and the three series are positioned to press the strings down upon the three upper frets, in imitation of fingering by the operator. Each series of fingers in its withdrawn or outer position rests against a stop-bar, as at $a^7 b^7 c^7$, Fig. 2, and is normally held in this position by

springs $a^8 b^8 c^8$, secured at their outer ends to cross-bars $a^9 b^9 c^9$, secured at one end to the hinge-upright 60 by means of angle ends of said cross-bar, and at the other end to an upright 68, secured by short right-angled top and bottom arms to the projecting ends of top and bottom bars 63 64. On the inside of upright 68 are secured brackets 69, 70, 71, and 72, in which is secured a rod or shaft 73, upon which are pivotally mounted three series of three horizontal tumblers each, as at $a^{10} a^{11} a^{12}$, $b^{10} b^{11} b^{12}$, and $c^{10} c^{11} c^{12}$, the series being each arranged behind and in alignment with the corresponding horizontal series of fingers, and each tumbler being provided with one or more points projecting from its front face in position to push forward such single keys of the series as may be required to be brought into use in fingering the strings of the guitar. These tumblers are held in their outer positions by means of springs $a^{13} b^{13} c^{13}$, coiled around the rod 73, and the proper tumblers are brought forward when desired to operate the fingers by means of chains $a^{14} b^{14} c^{14}$, which pass in groups over three series of pulleys $a^{15} b^{15} c^{15}$, pivotally mounted on rods $a^{16} b^{16} c^{16}$, secured one above the other in uprights 13 and 14, each series consisting of three pulleys arranged side by side on its pivotal rod. From these pulleys the chains pass downward, the groups merging into single chains (marked A', B', C', D', E', and F') and connected to treadles A, B, C, D, E, and F. In passing downward the chains pass between the uprights 13 14, inside of a guard-bar 74, secured to said uprights, and of the cross-bar 17, and have spring-links in them to keep them always taut. The treadles are pivotally mounted at their rear ends to brackets 75, secured to the under side of bar 22 of the base-frame, and are normally held upward by springs 76 and are guided in operation between pairs of rods 77, depending from bar 21 of the base-frame and secured at their lower ends in a bar 78.

G, H, and I indicate the three mutes of a series, each mute consisting of a double elbow-lever pivotally mounted at its principal angle on a rod 79, secured in brackets 80, attached to the uprights 27 and 28 of the body-frame and held in its forward position by a spring 81, secured at its outer end to a cross-bar 26 of the body-frame. These mutes are arranged in line with the three bass or wired strings of the guitar and are thus normally held against the strings, so that they cannot be sounded until the mutes are raised off them. This is effected by the treadles through the medium of chains G' H' I', attached to the respective mutes, the chains passing downward, then under a spool 82, pivotally mounted in brackets 83, secured to cross-bar 20 of the base-frame, and finally over and across the six treadles and secured to 18 of the main frame. The chain G' is connected by links to treadles A, C, and F, the chain H' to treadles B and E, and the chain I' to treadle D, so

that mute G is withdrawn from contact with its string (the E bass string) when either treadle A, C, or F is depressed, the mute H from its string (B bass string) when either treadle B or E is depressed, and mute I from its string (G bass string) when treadle D is depressed. It will of course be understood that when the mute of either string is withdrawn from contact with it that string is free to be sounded either open or fingered, as necessary in the particular chord to be sounded.

The treadles A B C D E F are to be operated by the left foot of the player to finger the strings, and the strings are sounded by a sounder or striker J, pivotally mounted between the cross-bars 29 and 30 of the body-frame and provided with a leather, rubber, or other contact-piece J' at its inner end in position to be drawn across the strings. This striker is normally held at one end of its stroke with its contact-piece outside of the bass-strings by a spring J² and impelled through the medium of a link-bar J³ by means of a treadle K, pivotally mounted on a cross-rod 84, secured in the bars 21 and 22 of the base-frame. The contact-piece J' is loosely pivoted at the outer end of the striker J and is yieldingly held by a spring-bar J⁴, secured to and parallel with the striker and passing through the ring J⁵ of the contact-piece, so that it will yield in passing across the strings in either direction.

The operation of my invention, partially described in the foregoing description of its construction, may be further explained as follows: The guitar being clamped on the machine, the player seats himself in position to bring his left foot into proximity with treadles A, B, C, D, E, and F and his right foot on treadle K, usually holding in his hands a banjo, violin, or other instrument to be played in the usual manner and to be accompanied by the guitar. The particular music to be played on the instrument in his hands will determine which of the treadles are to be pressed with the left foot, and as there are rarely more than three chords used in accompanying music in any particular key not more than three of these treadles will have to be operated in an ordinary tune. This number can be readily operated without raising the heel of the left foot from the floor, the heel acting as a pivotal point upon which to move the toe from one treadle to another. The strings of a guitar, commencing with the catgut strings, are usually tuned to sound E, A, D, C, B, E when open, and thus, as an example of the operation of the mutes and fingers, when treadle E is depressed the mute H is raised off the B bass string and that string left open, the finger *b*³ is pressed upon the D-string above the second fret, the finger *b*² is pressed against the A-string above the second fret, and the treble or catgut string E is left open, thus leaving open and fretted to be sounded the B open bass string, E on D-string, B on A-string, and E treble open. The treadle

K being now pressed downward by the right foot the striker J will be carried across these strings, sounding the chord of notes B, E, B, E, which will be repeated, but in reverse order, by the backward movement of the striker, caused by the spring J². The contact-piece J' will yieldingly strike the strings, as before described, so as to imitate as near as possible the action of the human fingers and prevent injury to the strings.

It will be understood that the chords to be struck may be varied at will by changing the arrangement of the tumblers and their points and of the chains, such variation being made to suit the maker of the machine or the player. In any arrangement the player will be able to accompany any other instrument on the guitar without the necessity of using the hands on the guitar for any purpose whatever while playing.

It will be obvious that the machine embodying my invention, as herein described, may be slightly modified in size and arrangement of parts whereby it will be adapted to support and play a banjo or other stringed instrument and that many slight changes might be made in the construction and arrangement of the various details without departing from the spirit and scope of the invention.

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

1. In a machine for supporting and playing a guitar, the combination of a base-frame, a body-frame pivoted thereto, a main frame pivoted to the base-frame and a head-frame projecting from the main frame over the base-frame, substantially as described.

2. In a machine for supporting and playing a guitar, the combination of a base-frame, a body-frame pivoted thereto at one end and adapted to rest on the face of the body of the instrument, a main frame pivoted to the opposite end of the base-frame, a head-frame on the main frame projecting over the base-frame, and hook-braces connecting the base-frame with the body and main frame, substantially as described.

3. In a machine for supporting and playing a guitar, the combination of the base-frame, the main frame pivoted thereto, a bracket on the main frame having two openings, a brace pivoted to the base-frame and having hook end engaging in one of said openings, a hook passing through the other opening and engaging around the brace, and a spring coiled around the hook on the opposite side of the bracket to maintain the brace in position.

4. In a machine for supporting and playing a guitar, the combination of a base-frame upon which to rest an instrument, a main upright frame, a head-frame over the base-frame adapted to clamp the neck of the instrument, a finger-frame hinged to the head-frame, and fingers therein adapted to press the strings over the frets, substantially as shown and described.

5. In a machine for supporting and playing a guitar, the combination with the base-frame having a rest for the instrument, the body-frame at one end thereof, a cushion-bracket
5 on the body-frame bearing on the bridge of the instrument, the head-frame, a curved cushion-bar therein to receive the neck of the instrument, and the clamp for holding the neck, substantially as described.

10 6. In a machine for supporting and playing a guitar, the combination of the head-frame provided with a clamp for the neck of the instrument, the finger-frame hinged to the head-frame, a horizontal series of fingers, of one
15 finger for each string, a stop behind each series, a spring for each key holding it independently back against said stop, three horizontal tumblers behind each series, springs for holding the tumblers individually out of
20 contact with the finger, points on each tumbler behind individual fingers in the series, treadles, and connections between the tumblers, substantially as described.

25 7. In a machine for supporting and playing a guitar, the combination with the base-frame, the main frame, a head-frame, the finger-frame pivoted thereto, fingers pivoted in the finger-frame and normally held away from the string, tumblers for operating the fingers nor-
30 mally held away from the fingers, spring-upheld treadles, and chains for each treadle, and branch chains connecting each of the chains with one or more tumblers, substantially as described.

35 8. In a machine for supporting and playing

a guitar, the combination of the head-frame, having fixed and movable side bars for embracing the neck of the instrument, a clamp-bar outside of the movable bar, a nut between the clamp-bar and the movable bar, a
40 long rivet passing through the movable bar and rigidly connecting the fixed bar with the clamp-bar, substantially as described.

9. In a machine for supporting and playing a guitar, the combination of the fingers ar-
45 ranged in horizontal series, treadles arranged in a horizontal series, mutes arranged in a horizontal series, chains connecting the fingers with the treadles, and chains extending from the mutes across the series of treadles,
50 and connected to one or more of the treadles, and to a rigid part of the machine beyond the series of treadles, substantially as described.

10. In a machine for supporting and playing a guitar, the combination of the base-frame,
55 a horizontal series of treadles pivoted thereto, a main frame, three series of three rows each of pulleys pivotally mounted one above the other in the main frame, three series of
60 fingers one series above the other for pressing the strings upon the frets of the instrument, and branch chains leading from each series of fingers over the corresponding series of pulleys and merging into single chains
65 connected to the treadles of the series, substantially as described.

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