

F. X. AUDET, JR.
STRINGED MUSICAL INSTRUMENT.

APPLICATION FILED SEPT. 4, 1900.

NO MODEL.

3 SHEETS—SHEET 1.

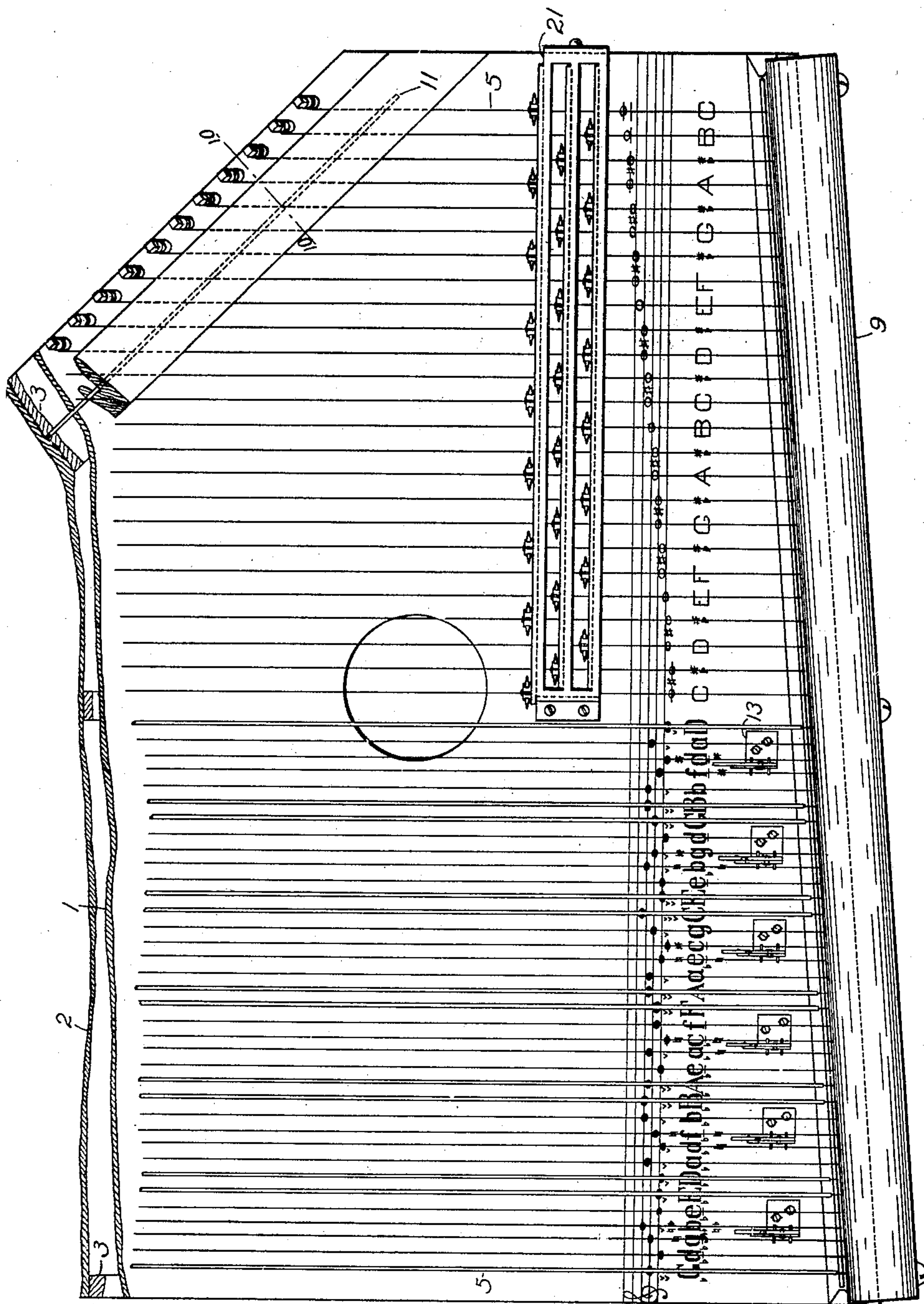


FIG. 1.

WITNESSES

Fred O. Fish
Horace Van Eversen

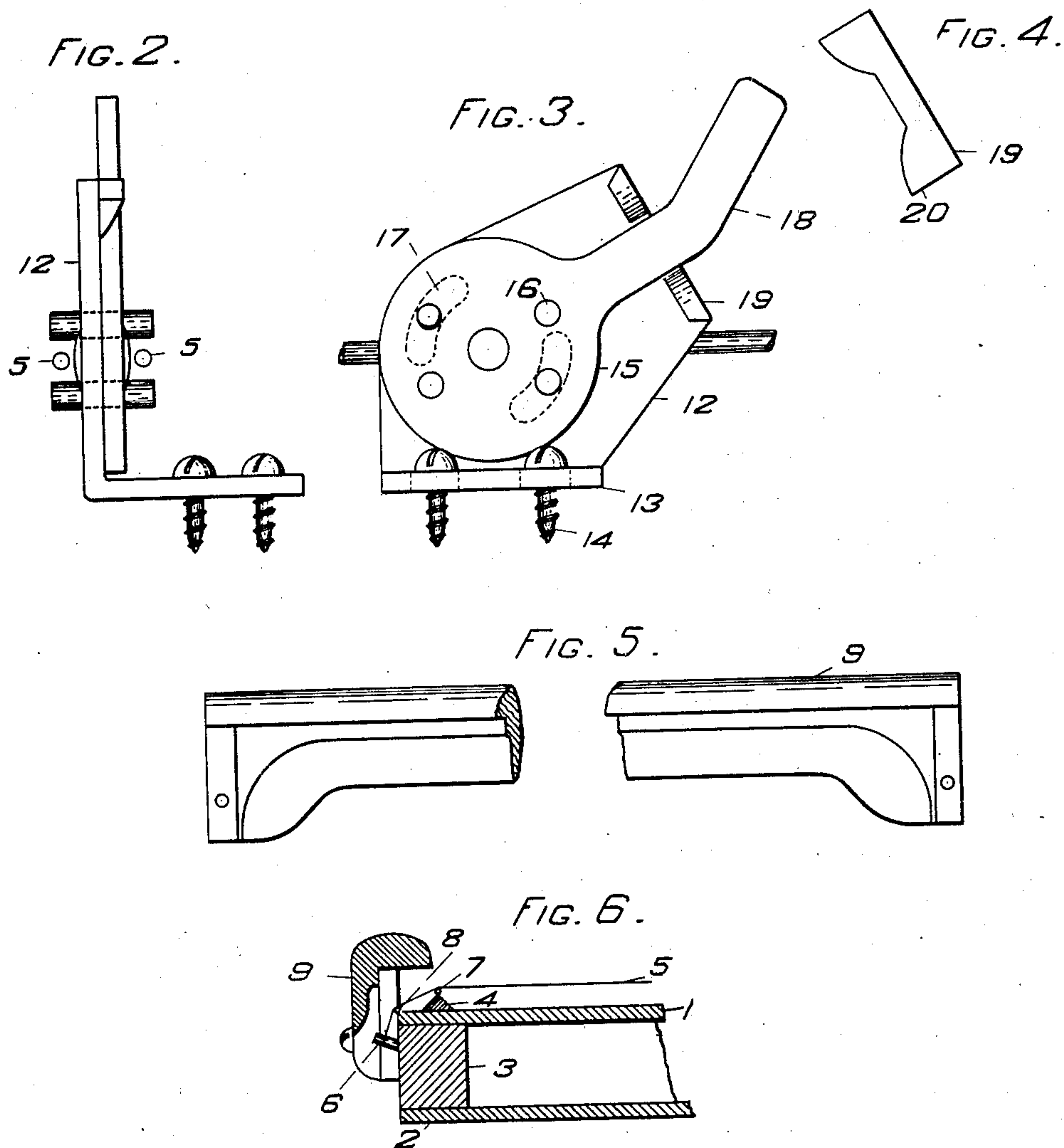
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3 SHEETS—SHEET 2.

NO MODEL.



WITNESSES

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3 SHEETS—SHEET 3

FIG. 7.

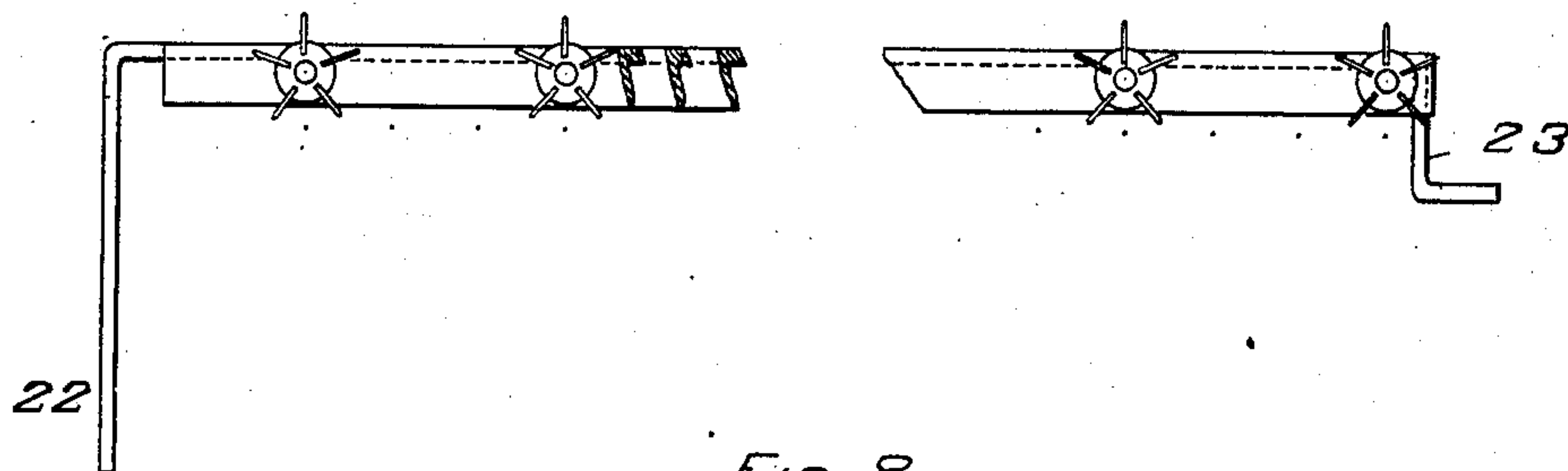


FIG. 8.

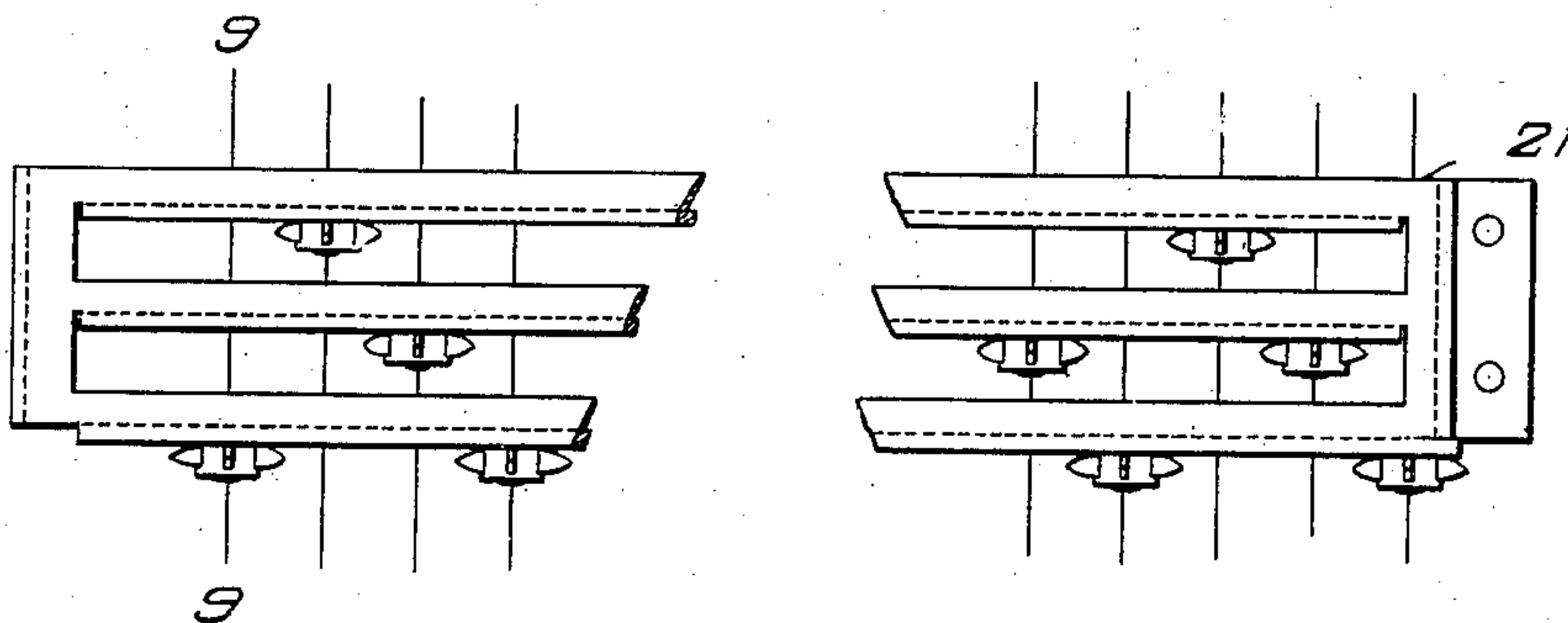


FIG. 9.

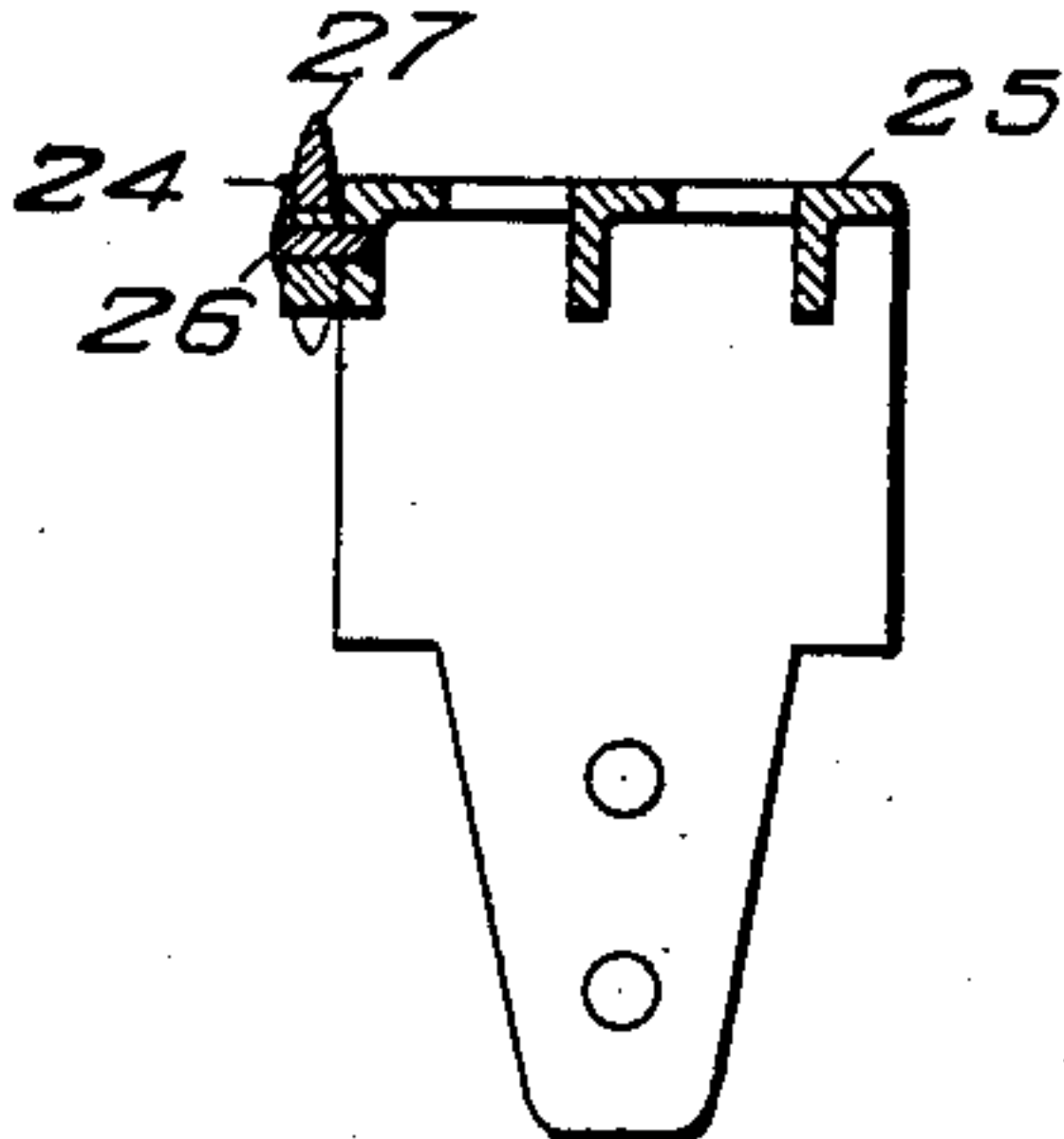
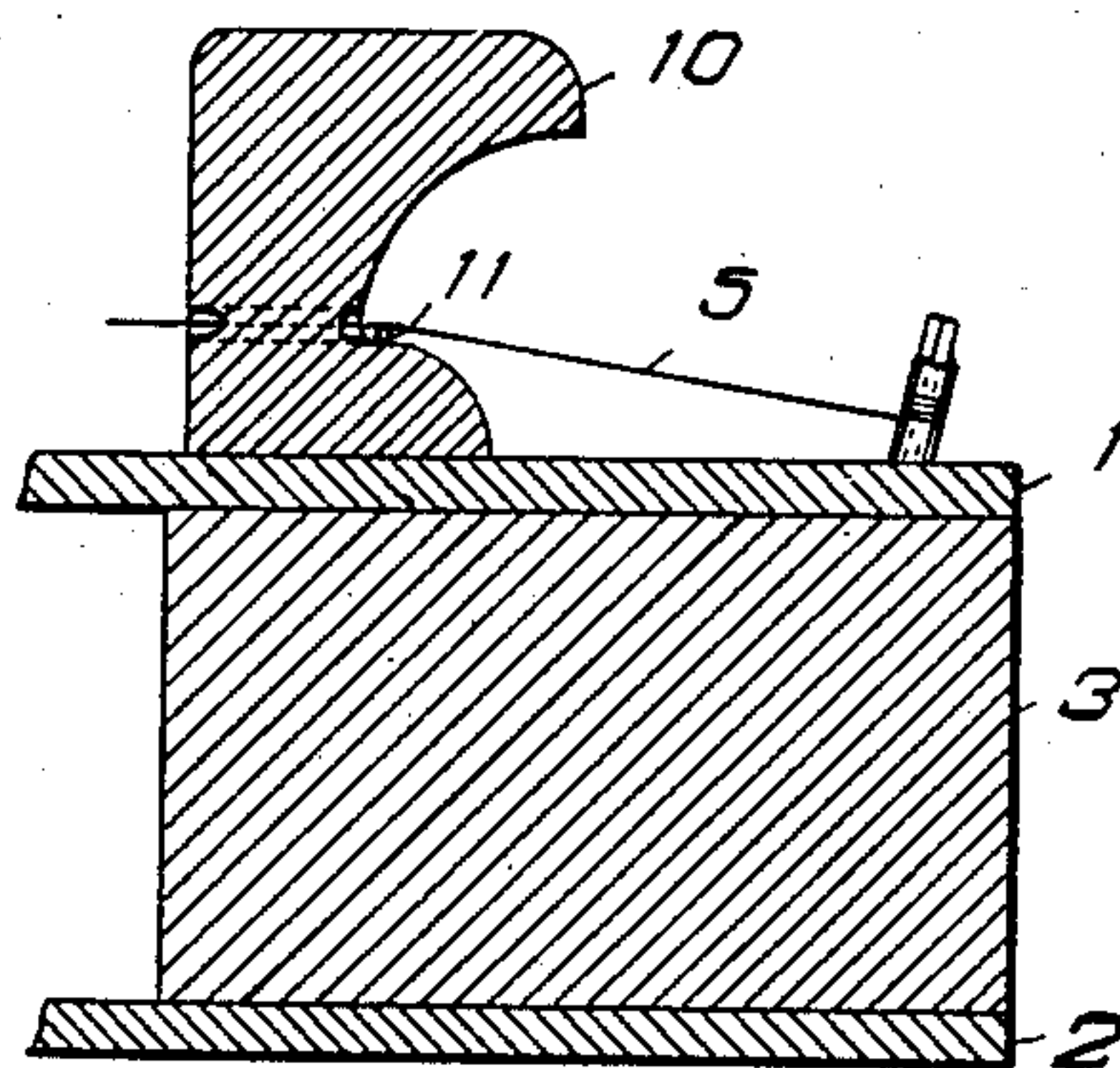


FIG. 10.



WITNESSES

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FRANK X. AUDET, JR., OF BOSTON, MASSACHUSETTS.

STRINGED MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 737,693, dated September 1, 1903.

Application filed September 4, 1900. Serial No. 28,864. (No model.)

To all whom it may concern:

Be it known that I, FRANK X. AUDET, JR., a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Stringed Musical Instruments; and I do hereby 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.

This invention relates to musical instruments, and more particularly to stringed musical instruments of the cithern type.

One of the objects of the present invention is to increase the scope or range of an instrument of the type referred to without unduly increasing the number of strings or the size of the instrument.

Another object of the present invention is to simplify the execution on an instrument of the type referred to of musical compositions, and especially of compositions written in any one of the keys most commonly used.

Another object of the invention is to increase the number of different effects which can be produced on such an instrument.

With these objects in view my invention consists in the devices and combinations of devices hereinafter described and claimed.

A preferred form of my invention is illustrated in the accompanying drawings, in which—

Figure 1 is a partial plan view of an instrument embodying the same. Fig. 2 is a view in end elevation, and Fig. 3 a view in side elevation of a string-locking device. Fig. 4 is a plan view of a plate connected with said locking device, to be described. Fig. 5 is a view of the hand-rest at the lower edge of the instrument detached. Fig. 6 is a detail sectional view showing the hand-rest in position. Fig. 7 is a view in side elevation, and Fig. 8 a plan view of the support for the pickers. Fig. 9 is a sectional view of the picker-support on the line 9 9, Fig. 8; and Fig. 10 is a detail sectional view on the line 10 10, Fig. 1, showing the hand-rest at the upper edge of the instrument.

Referring to the drawings, in which like characters of reference indicate like parts, 1 indicates the sounding-board, 2 the back-

board, and 3 the edge pieces of a cithern. Along the lower edge of the sounding-board is a ledge or bridge 4, over which the strings 5 pass, (see Fig. 6,) the ends of the strings passing over the edge of the sounding-board and being secured to pins 6 in the edge piece 3. Wires 7 and 8, running along the top of the bridge 4 and edge of the sounding-board, support the strings at these points. Secured to the edge piece 3 and extending upwardly and inwardly above the bridge 4 is a hand-rest 9, such hand-rest being substantially the same as usually found in instruments of this class except that its surface next to the edge piece 3 is hollowed out, as shown, and its lower edge is cut away to allow access to the pins 6 and ends of the strings without removing the hand-rest from the instrument, as has heretofore been necessary. Along the top edge of the sounding-board extends a combined bridge and hand-rest 10, the wires 5 passing through holes therein and over a supporting-wire 11 and being secured to rotatable pins at the outer edge of the sounding-board.

In citherns as heretofore constructed but one hand-rest extending along the lower edge of the instrument has been provided and it has therefore been customary for a performer to face the lower edge of the instrument and to rest both hands on the hand-rest. By providing a hand-rest at both the upper and lower edges of the instrument the performer is enabled to face the side of the instrument and to rest one hand on each rest, such position allowing greater freedom of movement and facilitating the execution.

With the exception of the particular form of the hand-rest 9 and the provision of the hand-rest 10 at the upper edge of the instrument the parts above described are or may be the same as are usually found in instruments of this type.

The manner in which the strings are arranged on the instrument is indicated by the chart shown in Fig. 1, this chart in practice being printed or pasted on the sounding-board. As indicated by the chart, the strings at the right are tuned to form the chromatic scale and the strings at the left are tuned to form a series of chords. This general arrangement has heretofore been employed in

instruments of this type, but in all such instruments with which I am acquainted the chord-strings have been arranged with reference to but one or at best a few keys—that is, the chord-strings have been arranged to bring the chords of a particular key in close proximity, thereby rendering the playing in that particular key simple and easy. The chords of other keys have, however, been separated, and in order to play in any key other than the principal key of the instrument it has been necessary to reach over intervening chords in passing from one chord to another. Moreover, the number of chords provided for has been limited by the size of the instrument, the greatest number heretofore provided for being the principal chords of a few major and minor keys.

By my invention I so arrange the chord-strings as to render the playing in any of the keys commonly used equally simple, no preference being given to one key over another, and I also provide for a much larger number of chords than has heretofore been possible without unduly enlarging the size of the instrument.

In the arrangement shown in Fig. 1, the chord-strings are arranged in six groups with six strings in each group tuned to form several chords. The outside strings of each group are tuned to the fundamental note of the chord of which it forms a part, such strings being designated on the chart by the capital letters beneath the strings, and the intermediate strings are tuned to notes which will combine with one or the other of the fundamental notes to form a chord, such strings being designated on the chart by the small letters. The chords of any one group are closely related, so that certain of the strings may be used with either fundamental note to produce a chord, the relation shown in the drawings being that of the minor third—that is, the outside strings producing the fundamental notes are tuned a minor third apart.

To increase the number of chords obtainable from the groups of strings, I provide a device for changing the length and thereby the pitch of certain of the strings in a group. As shown, this device is situated between the two middle strings of each group and is adapted to engage and lock either string and thereby raise its pitch a half tone. The locking device is preferably arranged to lock one string when moved in one direction and to lock both strings when moved in the opposite direction.

The arrangement shown in the drawings will be clearly understood from a consideration of the group of strings containing the fundamentals A and C, referring to which it will be seen that the strings of the group reading from left to right are tuned normally to A a e-flat, c, g, and C, the capital letters being used to denote the bass or fundamental notes. The four strings at the right form the chord of C-minor—C g c e-flat. When the

locking device is moved in one direction, the pitch of the e-flat string is raised to e-natural, and the four strings at the right of the group then form the chord of C-major—C g c e—and the four strings at the left the chord of A-minor—A a e c. When the locking device is moved in the opposite direction, the pitch of the strings e-flat and c is raised to e-natural and c-sharp, and the four strings at the left of the group form the chord of A-major—A a e c-sharp. I thus obtain four common chords from this group of six strings. I can also obtain certain other chords—as, for instance, the chord formed by A a e c-sharp g. The chords obtainable from the other groups of strings will be apparent from the chart without further description.

By providing a device for changing the pitch of one or more of the strings of a group it will be seen that I greatly increase the number of chords obtainable from a given number of strings, and in the particular arrangement of strings shown I provide for nearly all the chords known to modern music.

In the drawings I have illustrated an arrangement whereby the pitch of one or more of the strings of a group is changed a half tone; but it is to be understood that this portion of my invention, considered in its broadest sense, is not limited to such an arrangement, but contemplates any arrangement whereby the pitch of one or more of the strings of a group is changed relatively to the pitch of the other strings.

To bring the chords of the keys most commonly used in close proximity, the groups of strings are so arranged that the group containing the dominant chord of one of these keys is adjacent the group containing the tonic chord of that key on one side and the group containing the subdominant chord is adjacent the group containing the tonic chord on the other side. Suppose, for example, the composition which is to be played is written in the key of C-major. The tonic chord is found in the group containing the string designated by C on the chart, the dominant chord in the next adjacent group at the right containing the string designated G on the chart and the subdominant chord in the next adjacent group on the left containing the string designated F on the chart. From an inspection of Fig. 1 it will be seen that the same arrangement is true for the chords of the keys of G, F, and B-flat, and that thus the cords of any of these keys can be played with equal facility. Moreover, no difficulty is experienced in changing from one key to another when a modulation occurs, as the modulation most frequently occurring is to a key containing an additional sharp or flat, the chords of which are in close proximity to those of the principal key. This feature of my invention I consider of value apart from the particular arrangement of chord-strings, and I do not therefore consider it as limited to the particular arrangement of the strings shown, as a greater or less number

of strings might be used in each group to produce a greater or less number of chords without departing from the spirit thereof. Also the number of groups of strings might be increased or diminished without any material departure from the essential features of this portion of my invention. The chords of the other keys are arranged, so far as the above-described arrangement of the chords for the keys C, G, F, and B-flat will permit to bring the principal chords of a key in close proximity to each other, the arrangement being evident from an inspection of Fig. 1 without further description.

The device for locking the strings is illustrated in its preferred form in Figs. 2, 3, and 4. Referring to these figures, 12 designates a vertically-arranged plate provided with a part 13, extending at right angles thereto, adapted to be secured to the sounding-board of the instrument by screws 14. The plate 12 extends upwardly between the two middle strings of a group and has pivotally mounted thereon a disk 15, provided with string-engaging pins 16. One pair of these pins projects on each side of the disk and the other pair on one side of the disk only, the pins of each pair being situated at substantially diametrically opposite sides of the pivot for the disk and extending on each side of a string. The pair of pins on the back side of the disk, as viewed in Fig. 3, extend through curved slots 17 in the plate 12. As will be seen in Fig. 3, the pins are so arranged that a movement of the disk in one direction will cause one pair of pins to engage a string at different points in its length and firmly clamp the same by a slight twisting action, and a movement of the disk in the opposite direction will cause the other pair of pins to similarly engage and clamp the same string and also the other string. For so moving the disk an arm 18, attached to or integral with the disk, is provided, and for locking the disk with either pair of pins in engagement with a string the arm is made of resilient material and is arranged to press against a plate 19, secured to the plate 12, provided with projections or lugs 20, with the outer edges of which the arm 18 is adapted to engage. The pins 16 constitute string-engaging members and the disk 15 a carrier therefor.

The string-locking device constitutes a feature of my invention, and it is to be understood that this portion of my invention as to its generic features, is not limited to the construction shown, but may be embodied in different constructions.

For increasing the number of different effects which can be produced on an instrument of the cithern type I provide the instrument above described with a mandolin attachment consisting of a suitable stationary support arranged above the scale-strings and a pick or picks for one or more of the strings movably mounted on said support.

Referring to Figs. 1, 7, 8, and 9, 21 designates the support for the picks, conveniently made of sheet metal and provided at one end with a downwardly-extending portion 22, adapted to be secured by screws to the edge piece at the side of the instrument and at the other end with a downwardly-extending portion 23, bent at right angles, adapted to be secured to the sounding-board between the scale and chord strings. The horizontal portion of the support is provided with three downwardly-extending flanges, upon which the picks are mounted, as shown. The picks consist of wheels 24, pivotally or rotatably mounted on the flanges 25 by means of short studs 26 and provided with radially-projecting resilient teeth 27, preferably five or more in number. By providing an uneven number of teeth one tooth will always project above the support in position to be operated upon by the finger of the performer and two teeth will project below the support on each side of the string, as is clearly shown in Fig. 7. By making the teeth of resilient material the teeth will yield slightly when brought in contact with the string and spring away from the string on leaving it, thereby avoiding any buzzing effect.

It will be understood that the specific construction of the picks and support and the arrangement of the picks on the support can be varied without departing from the spirit of this portion of my invention.

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

1. A stringed musical instrument, having, in combination, strings grouped to form a plurality of chords, certain strings being common to two or more chords, and a device for changing the length and thereby the pitch of one or more of the strings common to two or more chords relatively to the other strings, substantially as described.

2. A stringed musical instrument, having, in combination, strings grouped to form a plurality of chords, certain of the strings being common to two or more chords, a string-locking device comprising string-engaging members located between two of the strings common to two or more chords, said locking device being movable in one direction to engage one of the strings and movable in the opposite direction to engage the other string, substantially as described.

3. A stringed musical instrument, having, in combination, strings grouped to form a plurality of chords, certain of the strings being common to two or more chords, a string-locking device comprising string-engaging members located between two of the strings common to two or more chords, said locking device being movable in one direction to engage one of the strings and movable in the opposite direction to engage both strings, substantially as described.

4. In a stringed musical instrument, a string-locking device, having, in combination, mem-

bers for engaging two strings, a carrier for said members, said carrier being movable in one direction to cause said members to engage one string and movable in the opposite direction to cause said members to engage the other string, substantially as described.

5. In a stringed musical instrument, a string-locking device, having, in combination, a pivotally-mounted carrier, string-engaging members projecting from one side of the carrier at diametrically opposite points and extending on each side of a string, string-engaging members projecting from the other side of the carrier at diametrically opposite points and extending on each side of another string, said carrier being movable in one direction to cause the members on one side of the carrier to engage one of the strings and in the opposite direction to cause the members on the other side of the carrier to engage the other string and means for locking the carrier with said members in engagement with either string, substantially as described.

6. In a stringed musical instrument, a string-locking device, having, in combination, a pivotally-mounted disk, two pins projecting from one side of the disk at substantially diametrically opposite points and extending on each side of a string, two pins projecting from the other side of the disk at substantially diametrically opposite points and extending on each side of another string, a resilient arm connected to the disk for moving the disk in one direction to cause the pins on one side of the disk to engage one of the strings and in the opposite direction to cause the pins on the other side of the disk to engage the other string, and a plate engaged by the arm provided with projections for locking the arm at the limit of its movement in either direction, substantially as described.

7. A stringed musical instrument, having, in combination, a pick-support above the strings and picks for one or more of the strings comprising toothed wheels rotatably mounted on said support and extending into a position to be engaged by the finger of the performer, substantially as described.

8. A stringed musical instrument, having, in combination, a pick-support above the strings and picks for one or more of the strings comprising wheels provided with resilient teeth rotatably mounted on said support and extending into a position to be engaged by the finger of the performer, substantially as described.

9. A stringed musical instrument of the cithern type, having, in combination, a hand-rest at the lower edge of the instrument and

a hand-rest at the upper edge of the instrument, whereby the performer is enabled to face the side of the instrument with one hand on each rest, substantially as described.

10. A stringed musical instrument, having, in combination, strings grouped to form two chords, the fundamental notes of which are a minor third apart, the outside strings being tuned to the fundamental notes of the chords and two of the strings being common to both chords, and means for changing the length and thereby the pitch of the strings common to both chords, substantially as described.

11. In a stringed musical instrument, a string-locking device, having, in combination, a pivotally-mounted carrier, string-engaging members mounted thereon and extending on opposite sides of a string, said carrier being movable to cause said members to engage the string, an actuating-arm on the carrier, and means for directly engaging the arm to lock the carrier, substantially as described.

12. In a stringed musical instrument, a string-locking device, having, in combination, a pivotally-mounted carrier, string-engaging members mounted thereon and extending on opposite sides of a string, said carrier being movable to cause said members to engage the string, a resilient actuating-arm on the carrier, and lugs arranged to engage the arm and lock the carrier, substantially as described.

13. In a stringed musical instrument, a string-locking device, having, in combination, a plate or frame adapted to be secured to the instrument, string-engaging members extending on each side of a string, means for actuating said members mounted on said plate or frame, and means mounted on said plate or frame for locking said members in engagement with a string, substantially as described.

14. In a stringed musical instrument, a string-locking device, having, in combination, a plate or frame adapted to be secured to the instrument, a carrier pivotally mounted on said plate or frame, string-engaging members mounted on said carrier and extending on opposite sides of a string, said carrier being movable to cause said members to engage the string, an actuating-arm on the carrier, and means mounted on said plate or frame for directly engaging the arm to lock the carrier, substantially as described.

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

FRANK X. AUDET, JR.

Witnesses:

HORACE VAN EVEREN,
FRED O. FISH.