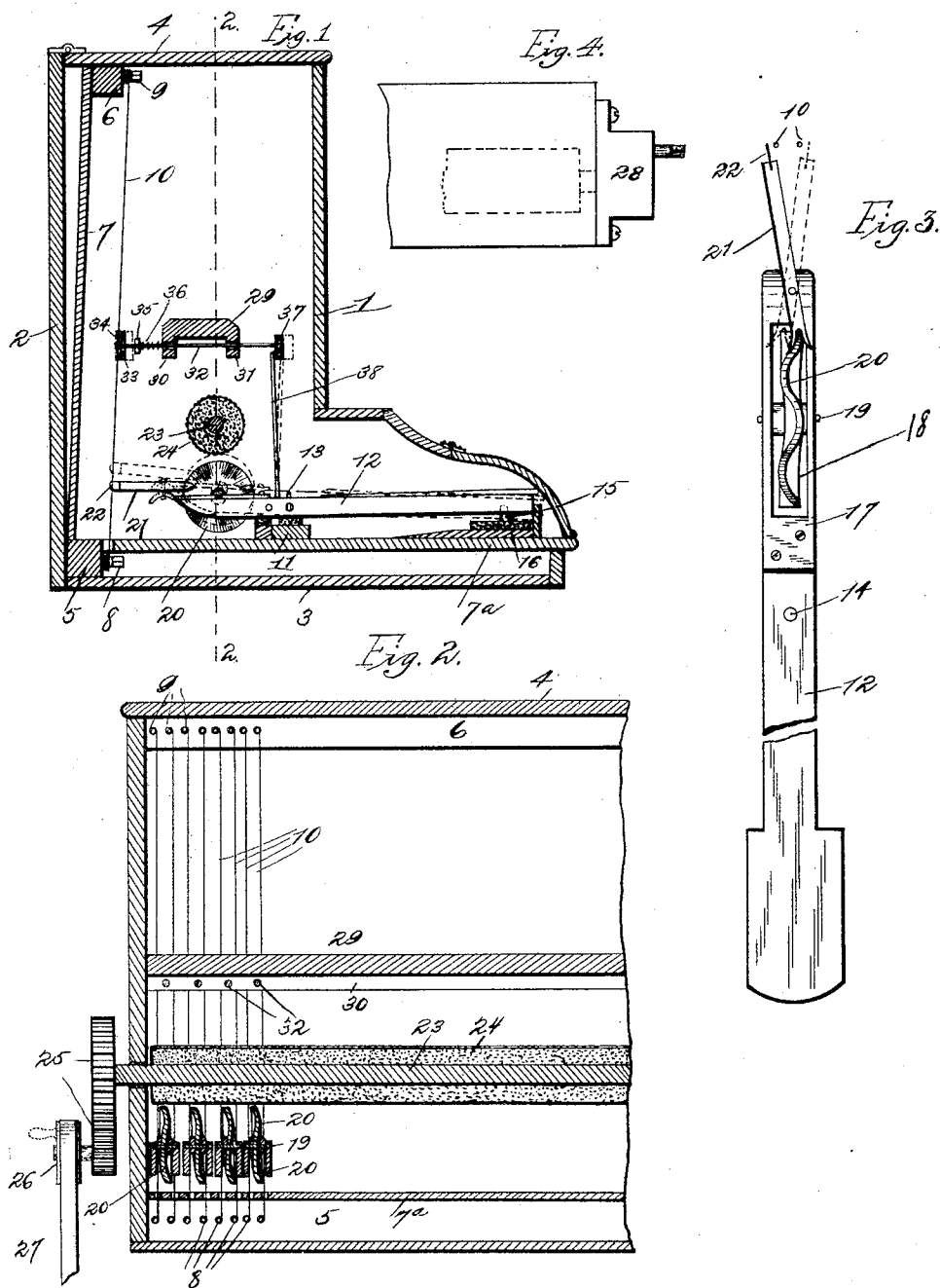


(No Model.)

C. A. NOACK.
CLAVO-MANDOLIN.

No. 530,712.

Patented Dec. 11, 1894.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES A. NOACK, OF ST. LOUIS, MISSOURI.

CLAVO-MANDOLIN.

SPECIFICATION forming part of Letters Patent No. 530,712, dated December 11, 1894.

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To all whom it may concern:

Be it known that I, CHARLES A. NOACK, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Clavo-Mandolins, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to musical instruments, and consists in the novel construction, combination and arrangement of parts, hereinafter specified and claimed.

The object of my invention is to produce a musical instrument which may be termed a clavo-mandolin, and consists in a series of strings or wires, a series of keys and other details of construction that will be hereinafter more fully specified.

Referring to the drawings: Figure 1 is a vertical cross-sectional view taken approximately at the central point of one of my instruments. Fig. 2 is a longitudinal sectional view of one of my instruments taken approximately on the line 2—2 of Fig. 1. Fig. 3 is a top plan view of one of the keys such as is used in carrying out my invention. Fig. 4 is a detail view of a portion of the frame work of my device with a clock work, or spring-actuated mechanism, attached to operate my instrument.

Similar numerals refer to similar parts throughout the several views.

The frame work of my instrument is made preferably rectangular in form, having a forwardly extending base. This frame work is composed of the front and rear sides 1 and 2, base 3 and hinged top 4. Running longitudinally of the instrument, and adjacent the rear frame 2, are the rectangular pieces 5 and 6, to which the sounding board 7 is secured. This sounding board is slightly inclined. Secured to the longitudinal piece 5 and to a forward portion of the frame work is a base 7^a, upon which the keys and their adjacent parts are located.

Secured to a pin 8 in the longitudinally extending piece 5, and to the piece 6 at the top portion of the instrument by means of a pin 9, is a series of wires, or strings 10, such

as are ordinarily used in mandolins and other stringed instruments. These strings are preferably paired and tuned as in an ordinary mandolin.

Located upon the rectangular piece 11, running longitudinally of the central portion of the instrument and upon the base 7^a, is a series of keys constructed and operated like the keys of an ordinary piano. These keys 12 are pivoted upon this piece 11 by means of pins 13 extending through vertical apertures 14 in said keys.

Pins 15 located upon a longitudinally extending strip 16 near the forward portion of the instrument extend into suitable apertures in the lower side of the keys 12, and serve as a guide for their vertical movement.

Felt, or analogous, washers having sound deadening qualities are placed around the pins 13 and 15 between the keys and the longitudinally extending strips 11 and 16. The forward end of each key is bifurcated, and secured upon the upper sides of the keys are a series of slotted metallic plates 17.

Mounted for rotation within a slot 18 in the metallic plate 17, and within the bifurcated end of the keys, and in bearings 19, are waved disks 20, said disks being preferably formed of metal. Pivoted near its center, and to the rearwardly extending portion of the plate 17, is a vibrating arm 21, the rear end of which is bifurcated. The forward end of this arm carries a tongue 22 of parchment, tortoise shell, or analogous material. This tongue 22 is adapted to lie in a longitudinal plane and contact with the vertically positioned wires 10. The rear, or bifurcated, end of the vibrating arm 21 is adapted to be engaged by the waved disk 20.

Rigidly secured to a shaft 23, running longitudinally of the instrument and immediately above the waved disks, is a roller 24 having a corrugated surface. This roller is adapted to be driven by gear-wheels 25, which in turn are driven by a belt-wheel 26 and belt 27, said belt being driven by a motor, or foot power, (not shown.)

The preferred form of rotating the shaft 23 and roller 24 is by means of the spring-actu-

ated mechanism, or clock work, 28, as shown in Fig. 4.

Extending longitudinally within the frame work of the instrument is a bracket 29, provided with downwardly pending portions 30 and 31, which form bearings for the longitudinally reciprocating rod 32, said rod carrying on its forward end a disk 33 provided with a felt, or analogous, surface 34. A bar 35 extends longitudinally of the instrument through which the rods 32 pass. Interposed between this bar 35 and the downwardly pending portion 30 of the bracket 29 are coil-springs, 36, the tendency of which is to hold the rods 32 forward, and the felt disks 34 against the strings 10. On the rear ends of the rods 32 are felt, or analogous, disks 37. Extending vertically from the keys 12 directly in front of the pivot pins 13 are rods 38, the upper ends of which contact with the felt disks 37.

The mechanism just described forms the damper of my instrument.

The operation of my instrument is as follows: The parts being in the position as shown in Fig. 1, and the rubber roller 24 rotated by means of the driving mechanism when any one, or more, of the keys are pressed down, the waved disks 20 are caused to contact with the rapidly rotating roller 24. By reason of the bifurcated end of the arm 21 being engaged by the edge of the waved disk 20, said arm 21 carrying the tongue 22 will be caused to rapidly vibrate, said tongue 22 striking, or engaging, against the wires 10 alternating to the right and left and thus obtain the desired result. At the same time a key is pressed down, the vertically positioned rod 38 will withdraw the horizontal rod 32 carrying the felt disk 34 out of contact with the wires 10, thereby allowing their free vibration until said key is released, and the damper returned to its normal position.

The position of the various parts when a key is pressed down is shown by dotted lines in Fig. 1.

The range of movement, or vibration, of the arm 21 is shown by dotted lines in Fig. 2.

The sounds, or tones, produced by this instrument are very similar to the tones produced by an ordinary mandolin when played upon, viz: there is a plurality or rapid succession of like sounds for each tone. Consequently when a number of keys are pressed in, said keys forming a chord, or series of harmonizing notes, the effect will be as though a number of mandolins were being played upon. Thus it will be seen how I have produced a simple and inexpensive musical in-

strument, and one that when played upon will produce in unison, or singly, tones similar to that of an ordinary mandolin.

What I claim is—

1. A musical instrument, comprising a casing, a sounding board located in the rear of said casing, a series of paired strings located adjacent said sounding board, keys carrying disks longitudinally positioned within said casing, vibrating arms pivoted to said keys and contacting with the strings, and operating mechanism for said disks.

2. In a musical instrument, a series of paired vertically arranged strings, or wires, a corresponding number of keys horizontally positioned within the instrument, waved, or corrugated, disks rotatably mounted upon the rear ends of said keys, arms pivoted upon the rear ends of the keys and vibrated by the waved disks, and a rubber faced roller adapted to drive the waved disks.

3. In a device of the class described, a key comprising a body portion, the rear end of which is slotted, a slotted plate mounted upon the rear end of said key, a waved, or corrugated disk mounted within said slotted key and plate, and a vibrating arm pivoted to said slotted plate carrying a flexible tongue.

4. In a clavo-mandolin, the combination of a rectangular frame work, a series of paired wires, or strings mounted upon tuning-pins or pegs within said frame work, keys horizontally positioned within said frame work, a waved, or corrugated disk mounted for rotation in the ends of said keys, arms carrying flexible tongues pivoted to said keys and vibrated by the wave disks, a rubber roller located immediately above said waved disks, means for rotating said rubber faced roller, and a damper comprising a horizontally moving rod having a felt disk on its forward end adapted to engage with the vertically positioned strings, and a disk upon its rear end adapted to be engaged by a vertical wire from the key.

5. In a device of the class described, the combination of a rectangular frame work, vertically positioned sounding board and strings, keys carrying on their ends waved disks, vibrating arms operated by said waved disks, and a corrugated rubber roller horizontally positioned immediately above said waved disks and adapted to drive said disks.

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

CHARLES A. NOACK.

Witnesses:

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MAUD GRIFFIN.