(No Model.) 2 Sheets—Sheet 1.

G. B. DURKEE.

AUTOHARP.

No. 559,124. Patented Apr. 28, 1896.

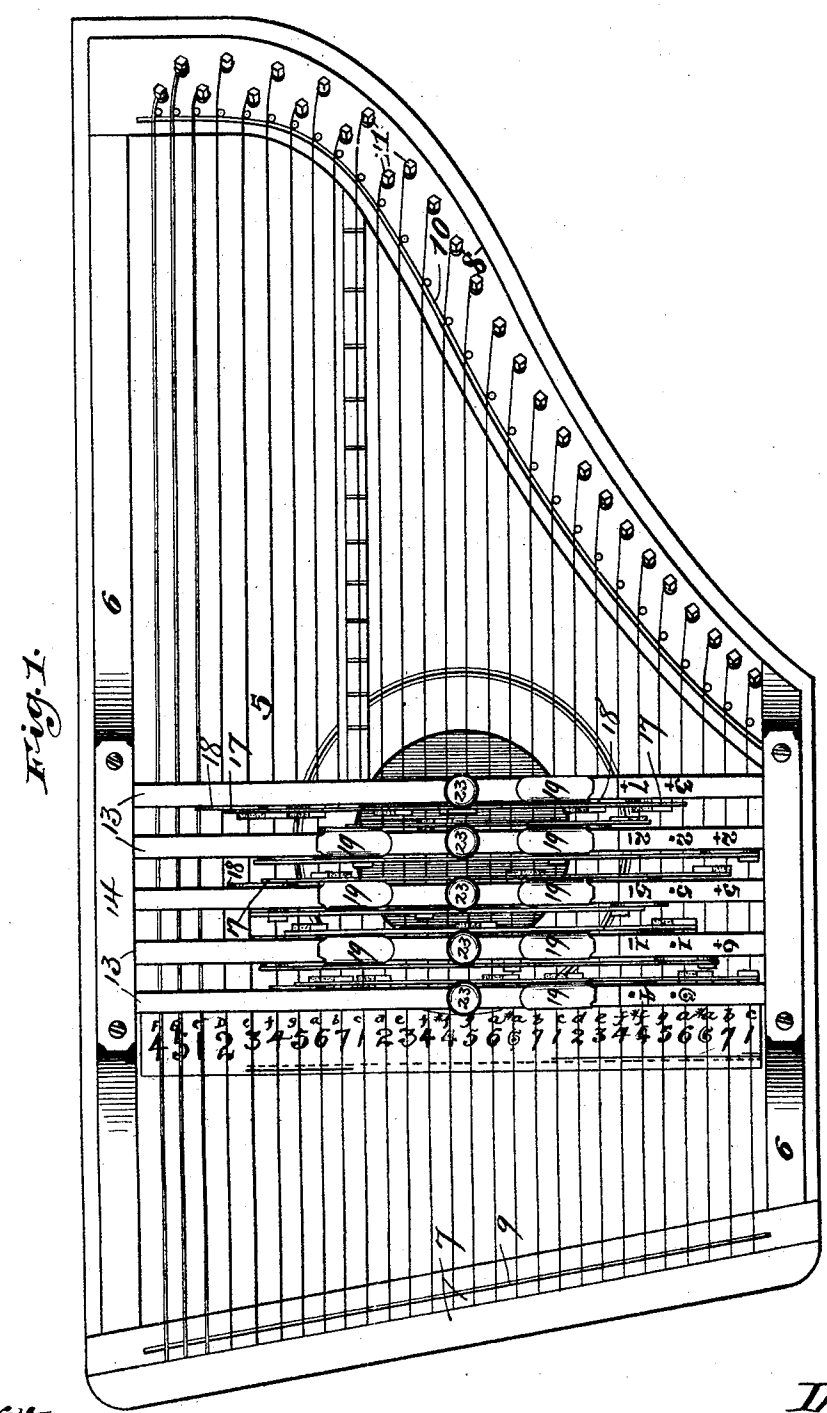

Fig. 1.

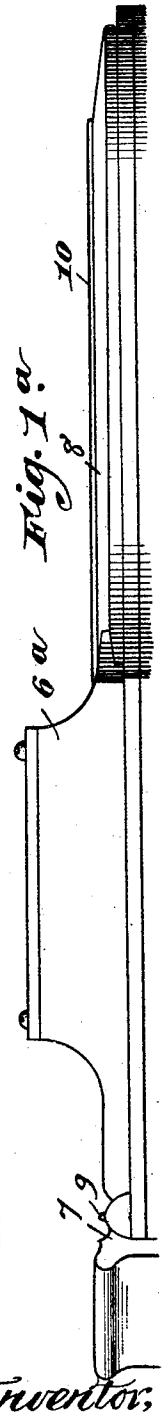

Fig. 1a.

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(No Model.) 2 Sheets—Sheet 2.

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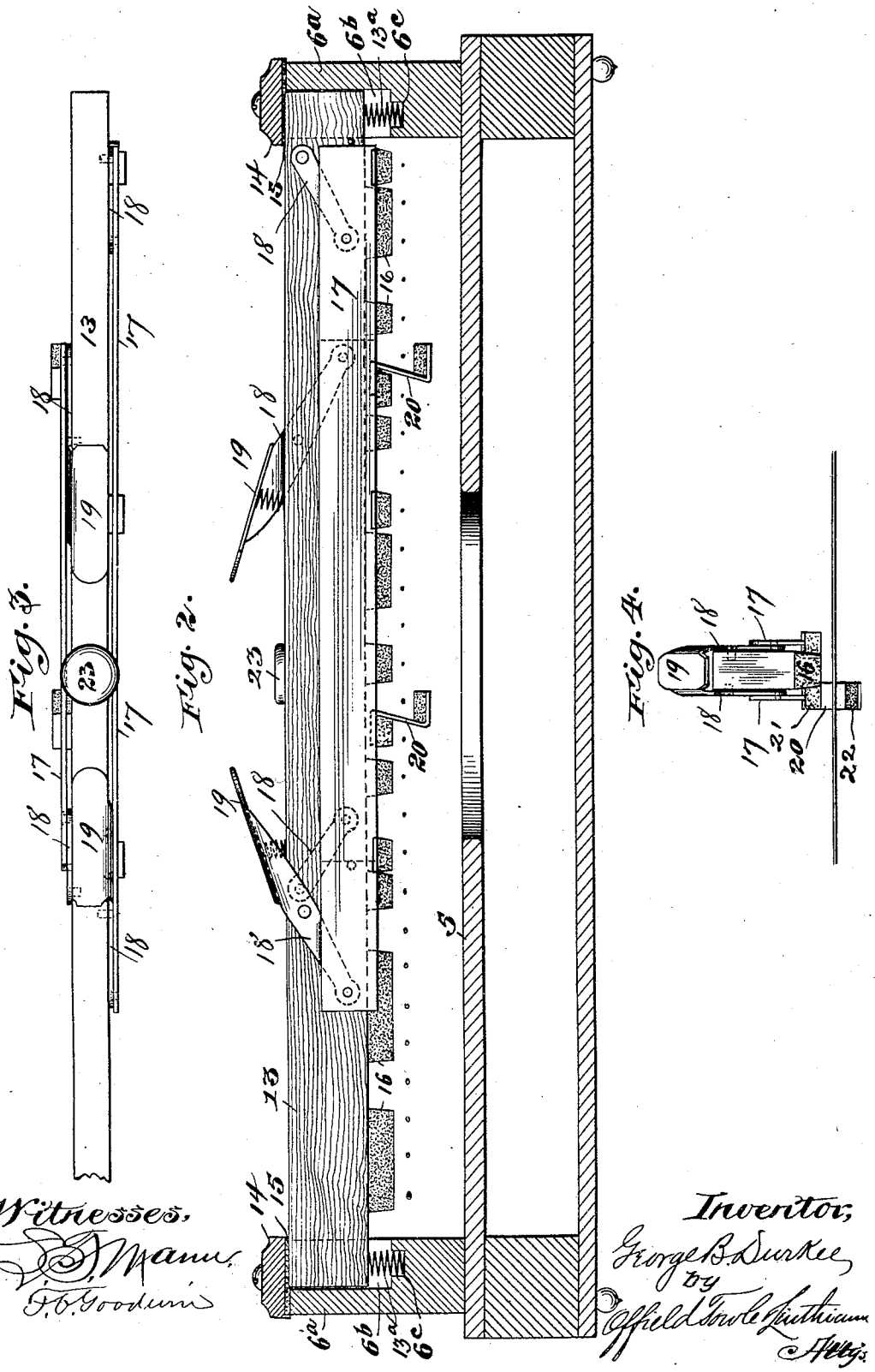

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UNITED STATES PATENT OFFICE.

GEORGE B. DURKEE, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE LYON & HEALY, OF SAME PLACE.

AUTOHARP.

SPECIFICATION forming part of Letters Patent No. 559,124, dated April 28, 1896.

Application filed March 30, 1895. Serial No. 543,861. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. DURKEE, of Chicago, Illinois, have invented certain new and useful Improvements in Autoharps, of which the following is a specification.

This invention relates to certain improvements in instruments of the cithern type and which I denominate an "autoharp;" and the object of the invention is to provide mechanical means whereby the player may produce chords automatically by sweeping across the series of strings. In the construction there is provided a base and a string-frame having bridge-pieces across which the strings are stretched. A series of damper-bars are mounted transversely of the strings, said damper-bars being capable of a vertical movement and provided with pads on their lower surfaces, which pads coming in contact with certain strings have the effect to stop them or prevent their sounding. Connected with these main vertical damper-bars are a series of swing-bars each provided with a double set of dampers normally out of contact with the series of strings, one set of which is carried into contact with certain strings by the downward movement of the vertically-movable main damper-bar. These swing-bars are also capable of an independent movement, which is produced by means of a finger-key, and the effect of the movement of which is to release the upper set of dampers carried by the swing-bars and bring the lower set into action.

In the illustration accompanying this application I have shown an instrument having twenty-eight strings with five main damper-bars, the outer ones having each one swing-bar and the three intermediate damper-bars each having two swing-bars thereon.

Any simple music can be played upon an instrument constructed as above described and various chords may be produced thereon, their number depending upon the number and arrangement of the damper-bars.

In the drawings, Figure 1 is a plan, and Fig. 1ª a partial edge view, of the instrument. Fig. 2 is a sectional elevation showing the damper-bars. Fig. 3 is a plan view, partly broken away, of one of the main damper-bars, showing swing-bars secured to each side thereof; and Fig. 4 is a transverse section through one of the bars, showing its dampers in relation to a string.

In the drawings, 5 represents the body of the instrument, which will be of a form corresponding to the particular style of instrument desired to be used, either of the cithern, harp, or lyre type. Upon the upper surface of this body is mounted a string-frame composed of the side pieces 6 and the end pieces 7 8, the latter being of the curved form. These end pieces 7 8 carry the string-bridges 9 10, and across these bridges are stretched the strings, being secured, as usual, at one end to the tuning-pins 11. These tuning-pins pass through the curved bridge-pieces, the sounding-board, and into the body-frame and are thereby given a firm hold. The side pieces have the raised portions 6^a, which are channeled or cut away, as at 6^b. These ways are provided with spring-pockets 6^c. Fitted to move vertically in these ways are a series of main damper-bars 13, which are mounted on spiral springs 13^a, the damper-bars being confined in contact with the springs by means of the cap-pieces 14, having the felt deadening-strips 15. These main damper-bars are provided on their lower edges with a series of damper-pads 16, the arrangement of which is varied on the several bars to suit the different musical keys. By the depression of any one of the bars the strings immediately beneath the pads carried by such bar are cut out so that in sweeping over the series of strings those particular ones will not sound. Each of these main damper-bars is provided with one or more swing-bars, preferably the two outer bars of the series being provided each with one swing-bar and the intermediate ones with two swing-bars each. These swing-bars are marked 17, and they are pivoted to the main bars through the instrumentality of links 18, said links being arranged parallel to each other and one of the links being extended upwardly to form a finger-key 19. These swing-bars have dependent shoes or hooks 20, Z-shaped and provided on the inner angles of their horizontal parts with damper-pads 21 22, the body of the hook being of sufficient length to project below the plane of the strings, so that the lower

set of pads 22 carried thereby operate upon the strings from the lower side, while the upper set of pads 21 operate upon another set of strings from the upper side.

Now with this instrument if one of the damper-bars be depressed the effect will be to carry the main set of dampers downward into contact with certain strings immediately below them, thus cutting out said strings; also the upper series of pads 21 are carried down into contact with another series of strings, thus cutting out that set. Now if it be desired to vary the chord the finger-key 19 is depressed, thereby moving the upper set of damper-pads 21 out of contact with the strings and bringing the lower set 22 up in contact with another set of strings. Therefore it will be seen that by the depression of one of the main finger-bars first one set of strings is cut out by the pads on the main damper-bar; second, another set of strings is cut out by the depression of the upper set of pads on the swing-bar, and, third, that by the manipulation of the finger-key the chord may be varied by releasing one set of pads on the swing-bar and bringing the other set into action.

For convenience I prefer to provide the main damper-bars with a series of disks or buttons 23, arranged centrally between the ends of the bars, so that by pressure thereon the bar will be carried down evenly at both ends; but it will be understood that it is not necessary to apply pressure at this exact point, as the same result would be accomplished by depressing the main bar through the instrumentality of one of the finger-keys, which will at the same time bring up the lower set of dampers, and thus stop one set of strings by means of the pads on the main damper-bar and vary the chord thereby produced by the action of the under set of pads on the swing-bar, and all in one operation.

I do not deem it necessary to describe the particular manner of arrangement of the dampers with reference to the strings, as this will be varied to suit the instrument and varied also somewhat with the number of strings.

I claim—

1. In an instrument of the class described, the combination with a series of vertically-movable main damper-bars, of swing-bars pivotally mounted on the main damper-bars and adapted to be carried down therewith, said swing-bars being provided with damper-pads adapted to contact with strings other than those contacted by the main damper-bars, substantially as described.

2. In an instrument of the class described, the combination with a series of main damper-bars, of swing-bars pivotally mounted on the main damper-bars and adapted to be carried down therewith, said swing-bars having two series of damper-pads respectively above and below the strings, and means for raising the swing-bars whereby to bring the lower series of pads into contact, substantially as described.

3. In an instrument of the class described, the combination with a series of main damper-bars, of a series of auxiliary damper-bars connected with the main damper-bars by swinging links, said auxiliary damper-bars having a series of depending hooks provided with damper-pads in different planes thereon, springs on which the main damper-bars are mounted and whereby they are normally supported out of contact with the strings, and finger-keys connected with the swing-bars whereby the damper-bars and swing-bars may be actuated simultaneously, substantially as described.

GEORGE B. DURKEE.

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