PATENTED OCT. 20, 1863.

W. DAVIS.

No. 40,333. MUSICAL INSTRUMENT.

Fig: 1.

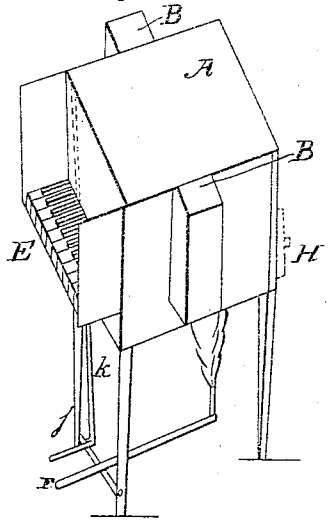


Fig: 2.

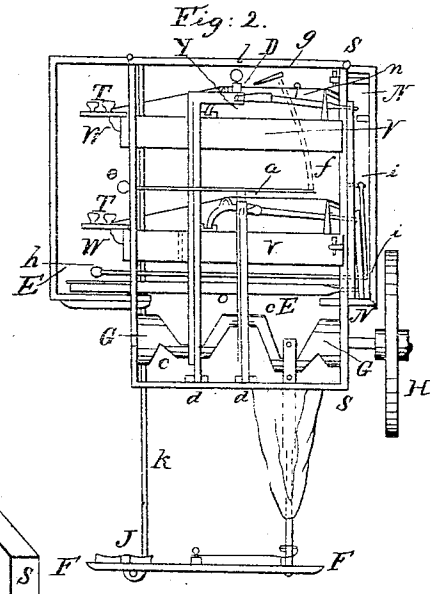


Fig: 3.

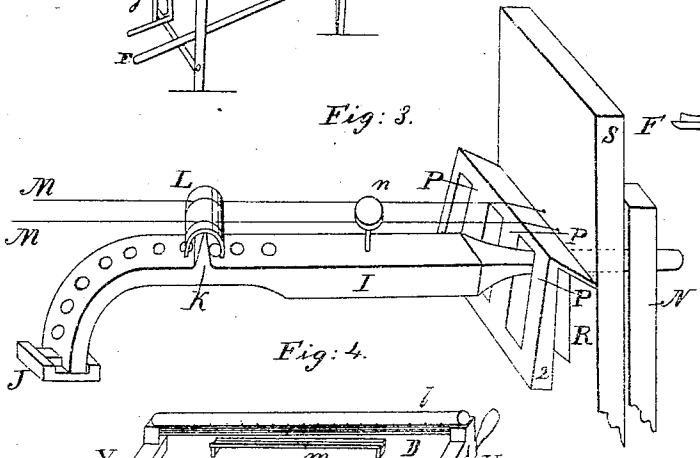


Fig: 4.

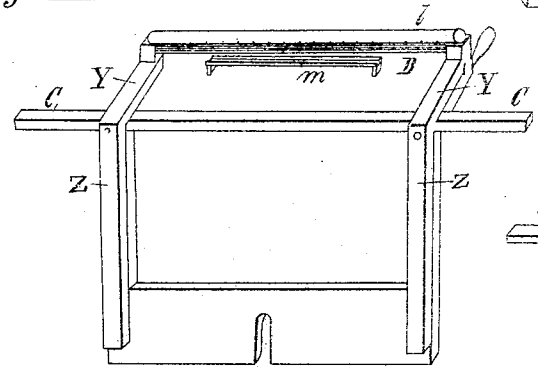
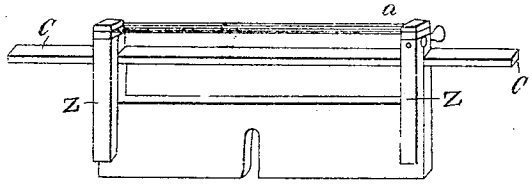


Fig: 5.



Witnesses;
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UNITED STATES PATENT OFFICE.

WILLIAM DAVIS, OF TAMAQUA, PENNSYLVANIA.

MUSICAL INSTRUMENT.

Specification forming part of Letters Patent No. **40,333**, dated October 20, 1863.

To all whom it may concern:

Be it known that I, WILLIAM DAVIS, of Tamaqua, in the county of Schuylkill and State of Pennsylvania, have invented a new and useful Musical Instrument; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the arrangement and combination of two or more horizontal bows operating at right angles across two or more sets of strings, arranged with their stops and couplers so as to produce the fine tones and musical sounds of the harp and violin by the operation of keys set in a finger-board.

Figure 1 represents a perspective view of the outside of the instrument, which is a four-sided case or box resting upon four or more legs. Fig. 2 represents a sectional view of the instrument. Fig. 3 represents the lever upon which the strings rest. Fig. 4 represents the upper operating hair-bow and its frame; Fig. 5, the lower operating hair-bow and its frame.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the square case, as seen at Fig. 1, having two side boxes or extension-wings, B, which allow the guides C of the frame of the bow D to operate in and move backward and forward to regulate their motion accurately, and that the case A need not be extended to an oblong shape or unnecessary length at each side.

E represents the finger-board or arrangement of keys E, which is intended to contain about six octaves, more or less.

F is the treadle which operates the crank G, that has a fly-wheel, H, on the outside of the crank to facilitate the movement of the treadle and crank.

I represents the lever, as shown at Fig. 3, its front end being perforated, so as not to muffle the sound made by the vibration of the strings. Its front end is curved and operates on a pivot or hinge, J, resting upon a drum, V, as a sounding-board. It has a bridge, K, covered by an arch, L, upon which the strings M rest. This lever I is made square, of wood, as light as possible, and has its back end tapered round to where it is connected with the lifter N, and its upward and downward motion is regulated by the aperature P, as a guide in the bridge Q and aperture R, through the frame S. The upright lifter N is connected with the horizontal key E of the finger-board, as seen at Fig. 2. The strings M are attached to the frame S, passing over the bridge Q and the arch L, and are tightened in front by the turn-pins T. There are to be two sets or rows of strings, one above the other. The drum V, upon which the lever I operates and rests, is an angular-shaped box, corresponding with the length of the scale of strings, and occupies a space the same length and width of each set of strings, and is located under the strings as a sounding-board, so as to give sound to the vibration of the strings. It tapers from the bass to correspond with the tone of the strings. There are two drums, one for each set of strings. There will be one, two, or three strings, M, to each lever I, and the strings, being fastened to the turn-pins T, attached to the sliding board with its cleat W, communicate their vibrations and sounds to the drum V by the pressure of the cleat W against the front end of drum V, which cleat W supports the front end of the drum, while the rear end of drum V rests in the frame S.

D represents the upper horse-hair bow, as seen at Figs. 2 and 4, attached to arms Y, and operating, with its upright movable frame Z, across the instrument, back and forward, the bow moving above the upper set of strings. The lower bow, *a*, moves in an opposite direction from that of the upper bow, D, above the lower set of strings, M, their frames Z being propelled by the crank G underneath, whose arms *c* are set one-quarter of the circle of the shaft distant from each other, so as to give an alternate motion to the frames Z. The lower parts of frame Z operate in grooves or guides *d* in the bottom of the case A.

e represents an octave stop working horizontally, having an upright lever, *f*, with the stop *g* at top, which presses upon the string M as the handle *e* is pushed forward.

h represents the handle, which is connected to the lower corner of a movable board, *i*, (which I call the "coupler,") suspended at the top by pins or hinges to the frame S. By pressing the handle *h* the coupling-board *i* is

forced back, together with the lower lifter N, and the upper lifter N is then allowed to move up and down independently, which admits the upper row or set of strings M to be played upon only to facilitate the tuning of the instrument, and by drawing forward the handle *h* the two lifters N are then again coupled and operate on both levers I.

j represents a common swell-stop, that by pressing upon the treadle its upright lever *k* raises the lid for the sound to swell and escape.

Above the hair-bows D and *a*, as seen at Fig. 4, are small perforated cylinders *l*, containing pulverized rosin, which, by gradually sifting out and falling upon the bows, supplies them. The surplus falling into a small trough, *m*, underneath prevents the waste of the rosin.

n is a small pin or screw (with a leather head) on the top of the lever I, that is for the purpose of stopping the vibration of the strings the instant the lever I falls, as the finger is removed from the key E. The keys E are kept in their places by the pressure of the strings M upon the arch L, which keeps the lever I and lifters N down, thus dispensing with the use of weights and springs commonly used on piano-keys.

To operate the instrument, the keys E are pressed upon by the fingers of the performer, while the treadle F is acted on by the foot, the treadle operating the crank G, by which the frames Z of the upper and lower bows are propelled in an opposite direction to each other, from right to left and back, and the pressure upon the proper keys, E, raises the lifters N, and the levers I raising the proper strings, M, until they come in contact with the hair-bows, when the cross movement of the bows, touching the strings, and produce the vibration, sounds, and tones required, according to the pressure upon the keys, for the shortest or longest sound in music, similar in duration to that of an organ.

The strings are tuned by the turn-pins T in manner similar to the tuning of the strings of a harp.

What I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement of two or more horizontal sliding bows operating upon two or more sets of strings, with their levers I, keys E, lifters N, coupler *i*, treadle F, and crank G, with fly-wheel H, arranged, combined, and operated as herein described, for the purpose of producing the musical sounds of the harp and violin.

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