

UNITED STATES PATENT OFFICE.

EVELYN ASHTON FLETCHER, OF TORONTO, CANADA.

MUSICAL-SCALE LADDER.

SPECIFICATION forming part of Letters Patent No. 619,294, dated February 14, 1899.

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To all whom it may concern:

Be it known that I, EVELYN ASHTON FLETCHER, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Musical-Scale Ladders, of which the following is a specification.

My invention relates to improvements in musical-scale ladders; and the object of the invention is to devise a simple teaching apparatus whereby not only children, but the blind, and, in fact, any students in music, may be readily and quickly taught the musical scales; and it consists, essentially, of a ladder provided with side bars and abutting rungs representing one or more octaves of the black and white keys of the piano, the black keys being preferably roughened and the side bars being provided with black spaces correspondingly wide, also preferably roughened, one of the side bars having a series of holes in alignment designed to receive the reduced ends of the key-tablets and the other side bar being divided longitudinally in the center and having a series of notches next the division at one side to receive the reduced ends of the opposite side of the tablet, such divided side bar being hinged and provided with locking-clips, the key-tablets having represented on them on one side the scale in sharps and on the other side the scale in flats and being otherwise arranged as hereinafter more particularly explained.

Figure 1 is a perspective view of my ladder complete, with the key-tablets placed adjacent. Fig. 2 is a view of the ladder with the divided side removed and the tablets placed to form a scale. Fig. 3 is a view of the ladder, showing it put together so as to exhibit this scale when completed to students. Fig. 4 is a detail of the tablet-bar.

In the drawings like letters of reference indicate corresponding parts in each figure.

A and A' are the side bars of the ladder. The side bar A is divided on the inside into a series of spaces a and a' , which are divided off correspondingly to the keys of a piano. The spaces a' are preferably black in color and roughened, being arranged in sets of twos and threes in the usual manner in an octave form of a piano.

B and B' are the key-tablets, which when the ladder is complete are arranged so that the roughened or blackened tablets B' are opposite the corresponding spaces a' in the side bar A and the white key-tablets B are opposite the white spaces a in the side bar A. A staff is represented on the tablets, from end to end thereof, representing a couple of octaves of the musical scale, each note being designed to correspond with the key-tablet upon which it is placed, thus indicating the note-name of each key-tablet. On the side shown in the drawings the major scale is shown—viz., with sharps—while on the opposite side the note, in the second way that it can be written, is indited and can be used when necessary in forming any scale requiring a note in that position.

The tablets B and B' are provided with preferably rectangular reduced ends b , fitting snugly into corresponding holes a^2 in the side bar A. The end tablet-bars B are held in place by the bolts b' , secured to the tablet-bars and fitting into holes in the edges of the end tablet-bars.

The bar A' is formed in two parts A^2 and A^3 , divided longitudinally and connected together by hinges a^3 . The part A^3 is provided with a series of equidistant notches a^4 , which are designed to receive the opposite reduced ends b^2 of the tablet-bars B and B'. In order to place this in position, the portion A^2 has to be turned back, as shown in Fig. 2, and the reduced ends b^2 brought into their respective notches, when the portion A^2 will be thrown forward to close the notches and the pivoted clips D swung across the divided bar, so as to hold it rigidly in position. The end notches a^5 are dovetail-shape notches to receive the dovetail-shape reduced ends b^3 of the end tablets. It will thus be seen that by means of the end tablets held at one side to the bar A by the bolts b' and at the other side to the divided bar A' by the dovetail-shape reduced ends and corresponding notches the scale may be held up in the position shown in Figs. 1 and 2 by the handles A^4 .

In Fig. 2 I show the major scale D formed on the bar A by inserting each key-tablet into its proper relative position, it being of course understood to those conversant with musical notation and the formation of scales that the

space between the third and fourth notes and seventh and eighth must be a half-tone. It will also be understood in utilizing my device that the black key-tablets must fit over
 5 the black spaces in the bar A and the white key-tablets over the white spaces in the bar A. Consequently when the scale is formed similar to that shown the key-tablets must be placed in their proper relative positions
 10 whether black or white, thereby indicating to the student the natural notes by the white key-tablets and the sharps or flats principally by the black key-tablets.

Even the blind may be taught their scales
 15 by my simple device, seeing that the black key-tablets are roughened, as indicated, so as to distinguish them from the white ones. Any desired scale may therefore be formed and the end bars placed in for convenience,
 20 so as to show them together, when they may be exhibited to the pupils in the scale by holding the ladder up to the position shown in Fig. 3.

It will thus be seen that by my device students in music may form the different scales, if desired, themselves, and thus impress them upon their minds very thoroughly.

What I claim as my invention is—

1. A musical-scale-teaching device, comprising side bars and a series of key-tablets forming the sole connection between the side bars, said bars and tablets being removably connected together, substantially as described.

35 2. A musical-scale-teaching device comprising a ladder having side bars having holes in them and rungs comprising abutting key-tablets having reduced ends, such key-tablets being arranged to represent one or more
 40 octaves of black and white keys of a piano-keyboard and one of the side bars having cor-

responding black and white spaces as and for the purpose specified.

3. A musical-scale-teaching device comprising a ladder having side bars having holes
 45 in them and rungs comprising abutting key-tablets having reduced ends, such key-tablets being arranged to represent one or more octaves of black and white keys of a piano-keyboard and one of the side bars having corresponding black and white spaces, such black
 50 notes and black spaces having roughened surfaces as and for the purpose specified.

4. In a musical-scale-teaching device, the tablets arranged to represent one or more octaves of a piano-keyboard with black and
 55 white notes one side bar provided with corresponding black and white spaces and holes to receive the ends of the key-tablets and the longitudinally-divided opposite side bar
 60 hinged and provided with retaining-clips and means for holding the tablets in the side bars as and for the purpose specified.

5. In a musical-scale-teaching device, the tablets arranged to represent one or more octaves of a piano-keyboard with black and
 65 white notes, one side bar provided with corresponding black and white spaces and holes to receive the ends of the key-tablets, and the longitudinally-divided opposite side bar
 70 hinged and provided with retaining-clips, the bolts on the solid side bar fitting into holes in the end tablets at this side, the opposite end of the key-bar being provided with a dove-tail-shape tongue fitting into corresponding
 75 end notches in the divided side bar as and for the purpose specified.

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Witnesses:

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