J. A. SCARRITT.

Music-Teaching Apparatus.

No. 162,770. Patented May 4, 1875.

Fig. 1.

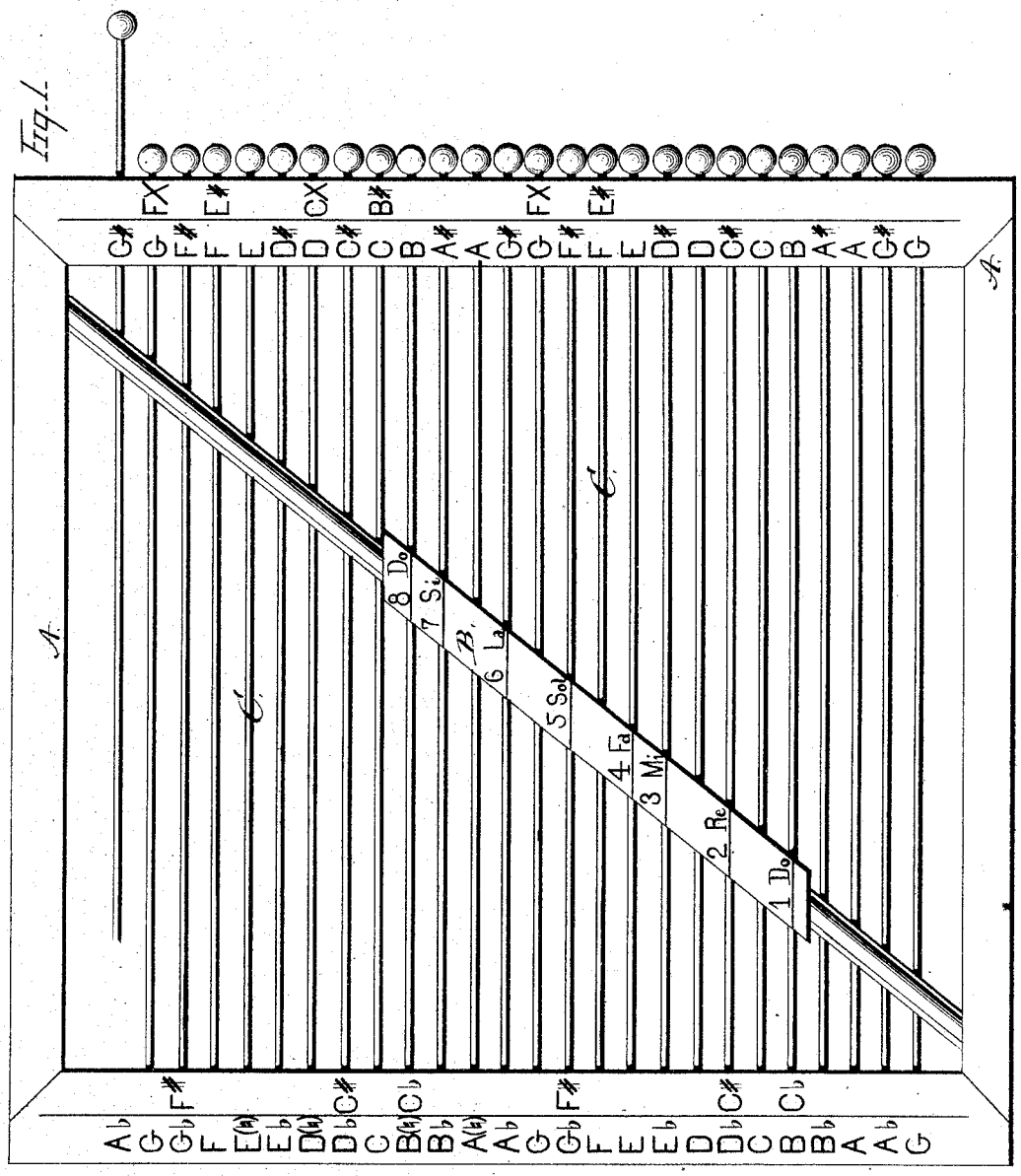
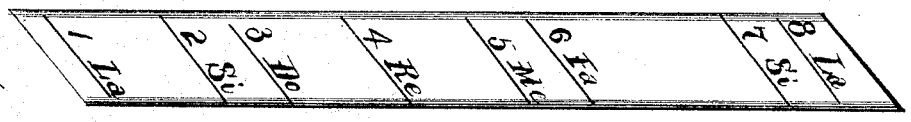


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOSIAH A. SCARRITT, OF COLUMBUS, OHIO.

IMPROVEMENT IN MUSIC-TEACHING APPARATUS.

Specification forming part of Letters Patent No. **162,770**, dated May 4, 1875; application filed April 2, 1875.

To all whom it may concern:

Be it known that I, JOSIAH A. SCARRITT, of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in a Device or Means for the Objective System of Musical Instruction; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to a device or means for the objective system of musical instruction.

In the drawings, Figure 1 represents a plan view of my invention; Fig. 2, a view of the additional or supplemental movable plate whereby the musical scale is altered from major to minor, or otherwise.

My device is designed to illustrate to the eye, and in that manner to teach, first, the names of musical sounds, (tones;) second, the relation to each other of musical tones; third, the magnitude of all possible intervals between tones, whether they occur between such as are successive (as in a scale) or between simultaneously-sounding tones, (as shown in a chord.) It is designed also to exhibit or illustrate, first, the tones which constitute each or any particular scale, whether major, minor, or chromatic; second, the magnitude of all the tone intervals in the several scales above mentioned; third, the magnitude of intervals in all chords, whether major or minor; fourth, the component tones of all chords; fifth, transposition, both in major and minor scales or chords; and to the adaptation of this feature to minor scales and chords, I consider that my invention owes one of its chief merits and most valuable capacities.

A is a frame of suitable construction and material, provided with the movable and sliding strip B, which I shall term a scale-indicator, guided and directed in such a manner as to run obliquely from the lower left-hand corner to the upper right-hand corner of the frame A. I do not, however, limit myself to this precise movement or direction, inasmuch as the scale-indicator may be arranged to move or slide vertically, or in the opposite diagonal direction. The right and left sides of the frame A are suitably punctured to admit parallel and equidistant wires or strands, C, which are twenty-five, more or less, in number. On the right-hand margin of the frame A, in characters which may be printed, stamped, or engraved, or otherwise made to appear, are the letter names of the tones of the natural scale, viz., *c*, *d*, *e*, *f*, *g*, *a*, *b*, &c., for two or more octaves, and also all the intermediate sounds of the "tonal system" in music which are expressed by the "sharp" symbol, making two octaves of the ascending chromatic scale. On the left-hand margin of the frame A are also shown the natural tones, with the intermediate sounds expressed by the use of the "flat" symbol, showing two complete octaves of the descending chromatic scale. A wire or line, C, crossing the frame from left to right, will obviously represent each separate tone in the two octaves above mentioned. The movable sliding scale-indicator B is marked by lines parallel in their direction with the wires C, which represent the tones, and the comparative and reciprocal relations or intervals of the major diatonic scale. In connection with each separate line upon the movable piece B are shown two scale names, viz., the numeral or degree name of the scale tone, and the syllable name.

In Fig. 2 of the drawings is shown a removable cap or plate, D, adapted to fit upon the movable piece B. This cap D is properly lined and spaced, and supplied with scale names in the same manner as the piece B, but in such a way as to represent the harmonic form of the minor scale, instead of the major diatonic scale. It will appear, therefore, that either of the scales just mentioned may be taught or shown by using or removing the supplemental cap D. Several removable plates may be provided, if desired, which may be properly marked and spaced to indicate any particular chord or combination or arrangement of tones, and by substituting any of these supplemental plates the scale-indicator may be made to demonstrate any desired scale or chord.

The scale-indicators B and D are each so constructed, and by being properly lined and spaced, that if one of the lines thereon be

placed directly over one of the wires C, the other lines will also fall directly over certain other wires. By placing the lowest line of either scale-indicator (marked in B 1 Do, and in D 1 La) over a wire which, when traced to the margin of the frame A, leads to any one of the usual tonics or key names, the other lines will, by tracing the wires over which they rest, show the letter names and degrees of that particular key or scale. In all the keys whose signatures are sharp, (viz., G, D, A, E, B, and F sharp,) trace the wires from the scale-indicator to the right-hand margin of the frame, while in those keys whose signatures are flats, (viz., F, B flat, E flat, A flat, D flat, and G flat,) follow the wires from the scale-indicator to the left-hand margin of the frame A.

To show how transposition of the scale may be accomplished, the following illustration may be used:

Take the major-scale indicator B and remove all the wires C, except those which represent the tones of the natural or C scale; then, if the line 1 Do of the scale-indicator be placed over the C wire, the several lines of the scale-indicator will show the tones of the scale of C major; then, to show the first transposition to G, (the dominant of C,) move the scale-indicator upward until the line marked 1 Do covers the G wire, when, by tracing the wires from the scale-indicator to the right-hand margin of the frame A, it will appear that no change of wires is neccessary until the *f* wire is reached, which, as it does not fall under a line of the scale-indicator, cannot be used in the scale of G. Withdraw that wire. It will next appear that the seventh line of the scale-indicator (marked 7 Si) points to the *f*-sharp wire. Now insert the wire representing that tone, and the scale of G major is found, and the necessary changes revealed, viz., the discarding of the tone *f* and the introduction of the tone *f* sharp. It is thus made objectively apparent that transposition is merely a change of pitch without any change of pitch relationship.

If it is desired to transpose from C to F, commence as heretofore instructed in the first example for transposition; then move the scale-indicator a fourth upward to the sub-dominant of C, which is F; then, by tracing the wires to the left-hand margin of the frame A, it will be found that *b* natural is not wanted, anp that *b* flat must be used instead; and so on through all the keys, from the natural to six sharps or six flats.

As regards transposition in minor scales, it is not deemed necessary, in view of what has already been described, to enter into a detailed instruction, as it is obvious that the minor-scale indicator D should be used, and the line 1 La of said minor-scale indicator be placed a minor third below its relative major scale. For example, A natural being a minor third below C natural, it must be No. 1 of the minor scale whose signature is the same as that of C major, the relative major scale of A minor. It will here be found that the note *g* must be discarded and *g* sharp be substituted in this scale of A minor.

What I claim as my invention is—

1. In combination with the frame A, provided upon its vertical margin with letters or characters indicating all the tones or notes of one, two, or more octaves, the removable wires or rods C and the sliding scale-indicator, so marked, spaced, and lettered as to indicate the major, minor, or chromatic scale, or any musical chord, substantially as and for the purpose described.

2. The removable wires C, in combination with the frame A and sliding scale-indicator, substantially as and for the purpose shown.

3. The frame A, provided upon its vertical or lateral margins with the letters and characters of the natural scale in regular order, and so placed as to appear consecutively over the wires or rods C, substantially as and for the purpose shown.

In testimony that I claim the foregoing, I have hereunto set my hand this 31st day of March, 1875.

JOSIAH A. SCARRITT.

Witnesses:

R. B. SMITH,

GEO. T. EMERY.