(No Model.)

W. F. DONOVAN.

MUSICAL KEY INDICATOR.

No. 428,806. Patented May 27, 1890.

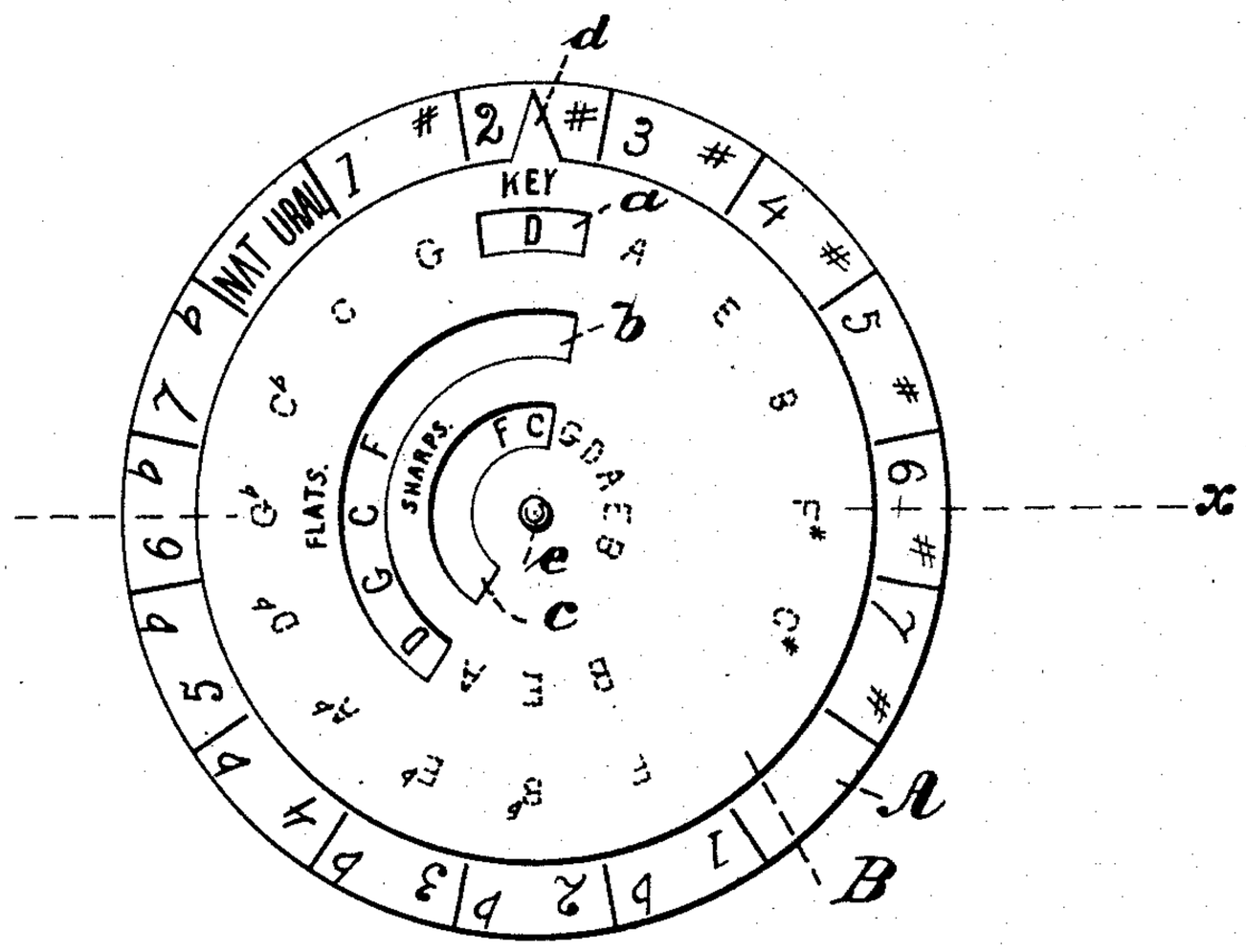

Fig. 1.

Fig. 2.

WITNESSES:

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WILLIAM F. DONOVAN, OF NEWARK, NEW JERSEY.

MUSICAL-KEY INDICATOR.

SPECIFICATION forming part of Letters Patent No. 428,806, dated May 27, 1890.

Application filed May 10, 1889. Serial No. 310,238. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. DONOVAN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Musical-Key Indicators; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide a convenient adjustable and portable chart or device for music-teachers by which teaching the science of music may be greatly simplified and facilitated.

The invention consists of two plates or disks, preferably circular in form and pivotally adjustable with relation to one another, one of which has imprinted thereon the flats and sharps and their numbers and the letters of the staff upon which they occur in a certain order, and the other having openings therethrough, by means of which, as one of the plates is rotated, any desired key can be instantly and automatically determined, together with the signature—*i. e.*, the number of sharps or flats and the letter or letters on which they occur—as hereinafter more fully set forth, and finally embraced in the claim.

In the drawings, Figure 1 represents an elevation or a front view of my invention, and Fig. 2 a section through line *x* of the same.

Like letters of reference indicate corresponding parts in each figure where they occur.

A is a revolving plate or disk the outer margin or surface of which is provided with a number of equal spaces—in the present case sixteen—divided by lines radiating from the center to the circumference or periphery, in one of which spaces on the margin or outer rim of the disk is written or printed the character or word "Natural," and in the first seven spaces to the right of this are written or printed in consecutive order the figures from 1 to 7 and a sharp (in character) to the right or left of each figure. In like manner the first seven spaces to the left of the word (or character) "Natural" are occupied by the same figures in reverse order—*i. e.*, from 7 to 1—and a flat, (in character,) as clearly shown in Fig. 1.

Upon radial lines which pass through the center of the marginal spaces above referred to and in three concentric circular lines are written or printed the seven letters of the staff—viz., A B C D E F G—the several groups being arranged in the following order, to wit: In the outer group the letter C will be found under the space occupied by the word "Natural," under the first space to the right the letter G, under the next space D, under the next space A, under the next space E, under the next space B, under the next space F♯, and under the next C♯. Under the first space to the left of the space occupied by the word "Natural" will be found the letter C♭, under the next space G♭, under the next D♭, and under the next A♭, under the next E♭, under the next B♭, and under the next F.

The next group of letters are arranged as follows: B under the letter F, (in the outer group,) E under B♭, A under E♭, D under A♭, G under D♭, C under G♭, and F under C♭. Supposing a diametrical line to be drawn across the face of the disk A, passing through the center of the space occupied by "Natural," the above letters B, E, A, D, G, C, and F will be found on the left of said line.

The next or central group of letters will be found on the right of said line and arranged as follows: F under G, (in the outer group,) C under D, G under A, D under E, A under B, E under F, and B under C. The above will be readily understood upon reference to Fig. 1, and it will be seen that the two inner groups of letters occupy each an arc or the segment of a circle.

The outer or stationary plate or disk B is provided with three segmental openings *a b c* and a pointer *d*. The outer or shortest opening *a* is directly beneath the said pointer and large enough to expose to view one letter at a time of the outer group of letters, and above said opening is written or printed the word "Key." The two inner openings *b* and *c* are large enough to expose to view all the letters in the two inner groups, respectively, as will be seen upon reference to Fig. 1. It will also

be seen that over the larger of the said inner openings is the word "Flats," and over the smaller the word "Sharps," the former to expose the letters upon which the signatures in flats occur and the latter those upon which the signatures in sharps occur.

As before stated, the outer plate or disk is fixed upon a stationary shaft *e*, driven into a black-board or any convenient support, and the inner plate or disk is made to revolve upon said shaft by and at the will of the teacher.

The operation is as follows: Suppose the pointer to rest at the center of the space in which is the word "Natural," the pointer resting upon the word "Natural" the opening *a* will expose the letter C, and the natural key of C is indicated. If the pointer rests at the first space to the right of "Natural," the letter G will be exposed through the opening *a* and the letter F through the opening *c*. Thus through the opening *a* is designated the key of G, the outer or marginal space in which the pointer rests showing the signature to be one sharp, and the inner opening *c* showing the letter F on which the sharp occurs. If the pointer rests at the second space to the right of "Natural," as in Fig. 1 of the drawings, the key of D will be designated through the opening *a*, the signature two sharps will be designated on the margin by the pointer, and the letters sharped, F and C, will be exposed through the inner opening, and so on through the whole transposition by sharps. The same operation applies in the transposition of the keys by flats. For example, suppose the pointer to rest at the center of the first space to the left of "Natural," the key of C♭ will be designated through the opening *a*, and the signature will be shown on the margin by the pointer to be seven flats, and through the opening *b* will be exposed the letter on which the flats occur in said signature, to wit: B E A D G C F, and so on throughout the several transpositions by flats, thus giving the pupil at a glance and simultaneously all the information required in respect to any given key, as will be readily understood.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A musical-key indicator combining therein a revolving disk A, having on its margin sixteen equal spaces divided by lines radiating from the center to the circumference, in one of which spaces is the character or word "Natural," and in the several spaces to the right and left thereof, respectively, the figures from 1 to 7, in connection with a sharp on one side and a flat on the other, in the order described, and on its surface, in three concentric groups, the several letters of the staff—viz., A B C D E F G—together with flats and sharps arranged in each group in the order and relation shown, and a smaller disk *b*, provided with three segmental openings *a b c*, and a pointer *d*, located above said opening *a*, said openings being arranged in relation to one another and to the several groups of letters, as set forth and shown, the parts being arranged to operate as described, for the purposes stated.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of April, 1889.

WILLIAM F. DONOVAN.

Witnesses:
OLIVER DRAKE,
E. L. SHERMAN.