UNITED STATES PATENT OFFICE.

SAMUEL B. TURNER, OF CHICAGO, ILLINOIS.

MECHANICAL MUSIC-CHART.


Application filed May 2, 1898. Serial No. 679,483. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL B. TURNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Chorographs, of which the following is a specification.

This invention relates to improvements in a chorograph or mechanical music-chart; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal objects of my invention are, first, to provide a chorograph or mechanical music-chart with self-adjusting marks of transposition and an automatic transposer for students and teachers of vocal and instrumental music which shall be simple in construction and operation and being especially arranged and designed for the piano, organ, and similar instruments; second, to provide such a chorograph or chart which will illustrate the diatonic scales in all the keys, and, third, will show the relation between major and minor music, with the principal chords of each, as commonly employed in piano and organ accompaniments. Other objects and advantages of my invention will appear in the description hereinafter contained.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figures 1 and 2 are views in front elevation of the chorograph or chart, showing it ready for use in the key of F major or its relative D minor. Fig. 3 is a detached front view in elevation of a portion of the automatic transposer or sliding piece, showing the marks of transposition, or, as is more commonly known, the signatures thereon. Fig. 4 is a cross-sectional view taken on line 4 4 of Fig. 1, showing the detailed construction of the device. Fig. 5 is an enlarged view in elevation of a portion of the device, showing it ready for use in the key of F major or D minor; and Fig. 6 is an enlarged fragmental view in elevation of the device, showing the characters on the black spaces thereof.

Similar letters of reference refer to like parts throughout the different views of the drawings.

If represents the body of the chart, which may be made of any suitable material, but preferably of cardboard or other thin material, and is usually rectangular in outlines, as shown in the drawings. This body or supporting-piece II is generally formed of three pieces h h' h" glued or otherwise secured together in such a manner as to form a cavity h" for the operation of the transposer or sliding piece I, which is made of cardboard or other thin material and is provided with a series of marks of transposition or signatures J J', located at or near the left-hand end of the transposer. These signatures or marks of transposition J J' may be separated by characters of explanation J", arranged longitudinally on the transposer and between the signatures, as shown in Fig. 3 of the drawings, or may be omitted, as usual, in written music. Arranged in an inclined longitudinal line on the transposer or sliding piece I are a number of black spaces K, with Arabic figures from 1 to 7 inclusive, (the figure 1 being repeated,) representing the diatonic scale. Below these black or colored spaces and arranged in horizontal lines are Arabic figures and words representing the diatonic scale, either or both of which may sometimes be omitted. The transposer or sliding piece I is formed at each of its ends with inclined edges i to slide on and contact with the inclined portions h" of the body or supporting piece or back, so that when the transposer is slid back and forth by means of cords h" or otherwise it will rise and fall for the purpose presently to be explained. The transposer is also provided with shoulders s on its upper and lower edges to engage shoulders or recesses h" in the body or supporting-piece to prevent the transposer being displaced or drawn too far in either direction. The piece h" or the front portion of the body is provided with a number of note-shaped openings l, representing the chromatic scale, which openings are arranged diagonally to correspond with and to represent alternately the tones produced by the white and black keys of the instrument and are employed to disclose the Arabic figures on the black spaces of the
transposer and a portion of said black spaces to give the diatonic scale. The piece $h^2$, or front portion of the body is also provided with an opening $L$ to disclose the signatures or marks of transposition $J$ on the transposer. The piece $h^2$ or front portion of the body is further provided with staffs $L^1$ and bars $L^2$ and clefs, which are located above the horizontal opening $L^2$ in the lower portion of the piece $h^2$ or front of the body which is employed to disclose the characters and words on the transposer representing the diatonic scale. Below the opening $L^2$ the piece $h^2$ is provided with a number of black spaces $L^1$, representing the keys of the instrument producing the flats and sharps between the whole tones in the key of $C$ major. On the said spaces are characters used for the same purpose. Below the opening $L^2$, the piece $h^2$ or front of the body is formed into blocks $L^1$, representing the white keys of the instrument, producing the tones of the diatonic scale in the key of $C$ major, and said blocks are provided with letters $L^1$, corresponding with similar letters $L^1$ on the staff above, the former series of letters representing the manner in which the music should be played if written in the key of $C$ major and the latter corresponding with the music as written if in the key of $C$ major.

Between the clefs and on the front of the body are displayed the words "Key of major" and "Relative of minor" in horizontal lines in such a manner that the letters which the signature represents will be exposed through the opening $L$, the said signature being exposed at the same time.

Secured to the body, so as to be in front of the front portion thereof, is a transparent piece $M$, which is provided with vertical lines $m$, which extend across the opening $L^2$ and register with the bars $L^2$ on the front of the body, thus making the same continuous from the staff to the black spaces $L^1$, representing the keys of the instrument, as before explained, some of them extending to the lower portion of the body. The transparent piece $M$ is also provided with horizontal lines $m^1$ and $m^2$, the former extending across the opening $L$ and the latter across the note-shaped openings but either or both of said series of lines may be sometimes omitted; but I prefer to use them, for the reason that they will make the lines composing the staffs continuous.

Instead of placing the lines $m$ on the transparent piece $M$, I may omit them therefrom and place them on the transposer; but I prefer to use them on the transparent piece, for the reason that if placed on the transposer they would appear broken unless accurately registering with the lines above and below the opening.

The Arabic figures displayed on the black or colored spaces $K$ on the transposer may sometimes be omitted; but it is preferable to use them.

While I have shown the chart or device arranged for a five-octave instrument, yet I do not desire to limit myself to such arrangement, as I may construct and arrange it for a larger or smaller number of octaves without departing from the spirit of my invention.

The lower portion of the device is provided with a piece of felt $N$ or other soft material for the keys of the instrument to strike against to prevent rattling and to protect the keys.

In using my chorograph or chart I place it in a vertical position, with the black spaces $L^1$ directly over the corresponding keys of the instrument, in which position the blocks $L^1$ will lie directly over the white keys. When it is desired to play in the key of $F$ major or its relative $D$ minor, the transposer is slid toward the left or bass in the cavity of the body by means of one of the cords $h^2$ or otherwise until the signature of $F$ major or its relative $D$ minor shall be exposed through the opening $L$ in the front of the body, as shown in Fig. 1 of the drawings, in which position it forms the diatonic scale in the key of $F$ major, a portion of the black spaces $K$ and white figures thereon showing through the proper note-shaped openings $l$ in the front of the body, and the Arabic figures and words representing the diatonic scale will at the same time be located so that the said figures will correspond with the diatonic scale in the key of $F$ major and the words to correspond with the notes commonly used in the same key in vocal music. When the parts are in the positions above mentioned, the vertical lines $n$ on the transparent piece $M$ will register with the lines $L^2$, forming the bars, and the lines $m^1$ thereon will register with those forming the staffs extending across the opening $L$, while the lines $m^2$ on the piece $M$ will extend across the note-shaped openings, thus always affording continuous lines, whereas if the said lines were omitted from the transparent piece and placed on the transposer they might appear broken or irregular.

When it is desired to play in the key of $G$ major or its relative $D$ minor, the transposer is slid toward the right or treble, so that the signature of $G$ major or its relative $D$ minor is displayed through the opening $L$, as shown in Fig. 5 of the drawings, in which movement of the transposer it will be caused to rise slightly within the cavity of the body by reason of its inclined edges riding on the inclined edges of the body, thus forming the diatonic scale in the key of $G$ major by exposing a part of the black spaces $K$ and the figures thereon through the proper note-shaped openings and also transposing what was previously shown in the key of $F$ major to the key of $G$ major.

From the foregoing it is evident that the ten remaining keys, with their relative minor keys, may be affected and transposed in a like manner.

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

1. The combination with a body or supporting-piece having a cavity provided with inclined edges and shoulders, of a transposer movably located within the cavity and having inclined edges and shoulders to engage those of the body, substantially as described.

2. The combination with a body or supporting-piece having a cavity, a vertical opening, to exhibit the sharps and flats in the different keys, as well as other characters showing the relation between major and minor music, said characters being arranged in pairs on one side of a single transposer, and a horizontal opening, of a transposer diagonally movably located within the cavity of the body and having signatures or marks of transposition, substantially as described.

3. The combination with a body or supporting-piece having a cavity provided with inclined edges and shoulders, said piece having a vertical opening, a horizontal opening, and a series of note-shaped openings, of a transposer movably located within the cavity of the body and having signatures or marks of transposition and a series of black or colored spaces arranged on its front surface, substantially as described.

4. The combination with a body or supporting-piece having a cavity, a vertical opening, a horizontal opening, and a series of note-shaped openings, said body being provided on its front surface with bars, staffs and clefs, of a transposer diagonally movably located within the cavity of the body and having signatures or marks of transposition, and a series of black or colored spaces located on its front surface, substantially as described.

5. The combination with a body or supporting-piece having a cavity, a vertical opening, a horizontal opening and a series of note-shaped openings, said body being provided on its front surface with bars, staffs and clefs, of a transposer diagonally movably located within the cavity of the body and having signatures or marks of transposition thereon and also having a series of black or colored spaces diagonally located on its front surface, said spaces bearing figures, the transposer also having words and Arabic figures representing the diatonic scale arranged in horizontal lines on its front surface, substantially as described.

6. The combination with a body or supporting-piece having a cavity provided with inclined edges, said body having a vertical opening, a horizontal opening, and a series of note-shaped openings and being provided on its front surface with bars, staffs and clefs, of a transposer having inclined edges and located within the cavity of the body and provided with signatures or marks of transposition, and a series of black or colored spaces arranged on its front surface, substantially as described.

7. In a chorograph or mechanical music chart, the combination with a body having a cavity, a vertical opening, a horizontal opening and a series of note-shaped openings, and being provided on its front surface with bars, staffs, clefs, lines, words, letters and a representation of the keyboard of a piano or organ, and having secured over its front a transparent piece, of a transposer diagonally movably located within the cavity of the body, said transposer having thereon signatures or marks of transposition, arranged in pairs, and having connected therewith characters of explanation, and also having thereon black or colored spaces, and also a line of syllables and a line of numerals arranged horizontally, substantially as described.

8. The combination with a body or supporting-piece having a cavity, a vertical opening, a horizontal opening, of a transparent piece secured over the front of the body, and a transposer diagonally movably located within the cavity of the body and having signatures or marks of transposition, substantially as described.

9. The combination with a body or supporting-piece having a cavity, a vertical opening, a horizontal opening, and a series of note-shaped openings, said body being provided on its front surface with bars and staffs, of a transparent piece secured over the front surface of the body and having lines to register with the bars and staffs of the body, and a transposer diagonally movably located within the cavity of the body and having on its front surface signatures and black or colored spaces, substantially as described.

10. In a chorograph or mechanical music chart, the combination with a body or supporting-piece having a cavity, a vertical opening, a horizontal opening and a series of note-shaped openings, and being provided on its front surface with bars, staffs, clefs, lines, words, letters and a representation of the keyboard of a piano or organ, and having secured over its front a transparent piece having thereon lines to register with the bars and staffs, of a transposer diagonally movably located therein said transposer having thereon signatures or marks of transposition and syllables and numerals representing the diatonic scale, and a line of black or colored blocks arranged diagonally, substantially as described.

Signed at Chicago, Illinois, this 30th day of April, 1898.

SAMUEL B. TURNER.

Witnesses:
CHAS. C. TILLMAN,
E. A. DUGGAN.