No. 675,345. Patented May 28, 1901.

H. BAUER.

MUSIC CHART.

(Application filed Feb. 19, 1901.)

(No Model.) 3 Sheets—Sheet 1.

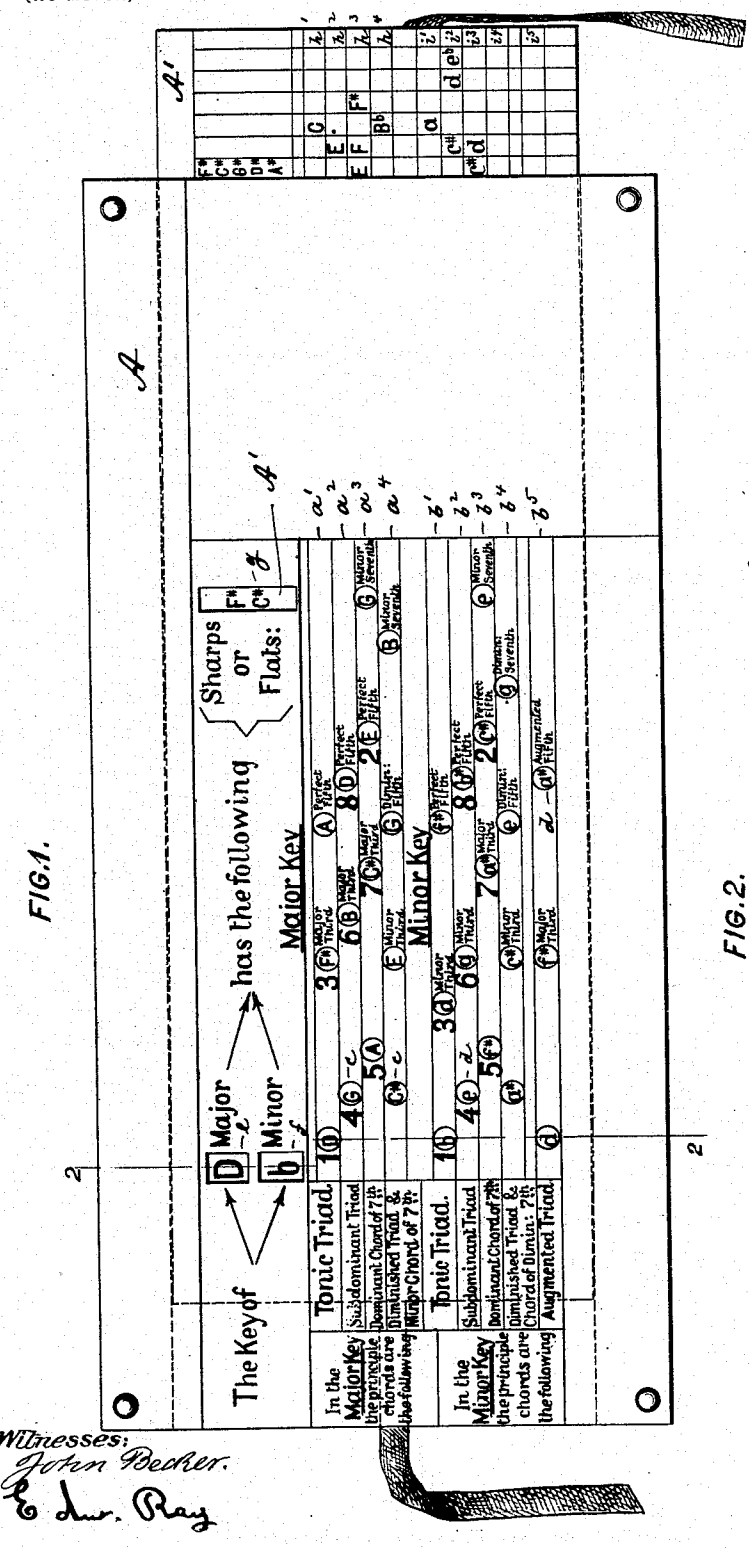


FIG. 1.

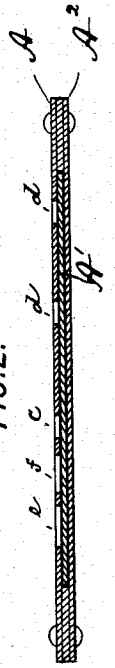


FIG. 2.

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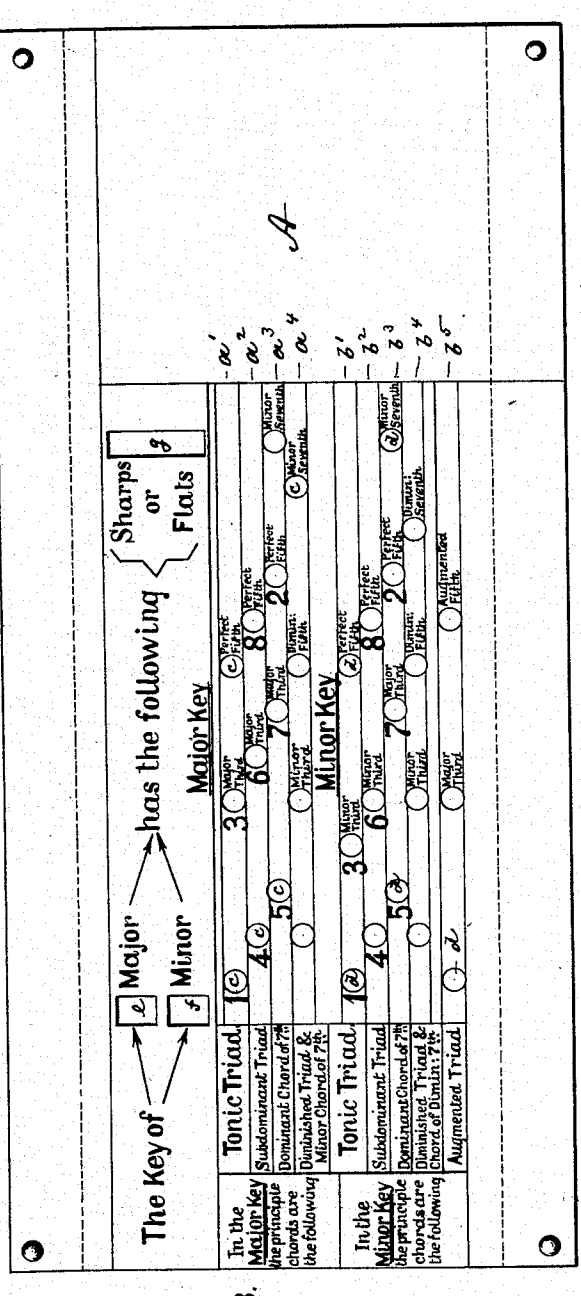


FIG. 3.

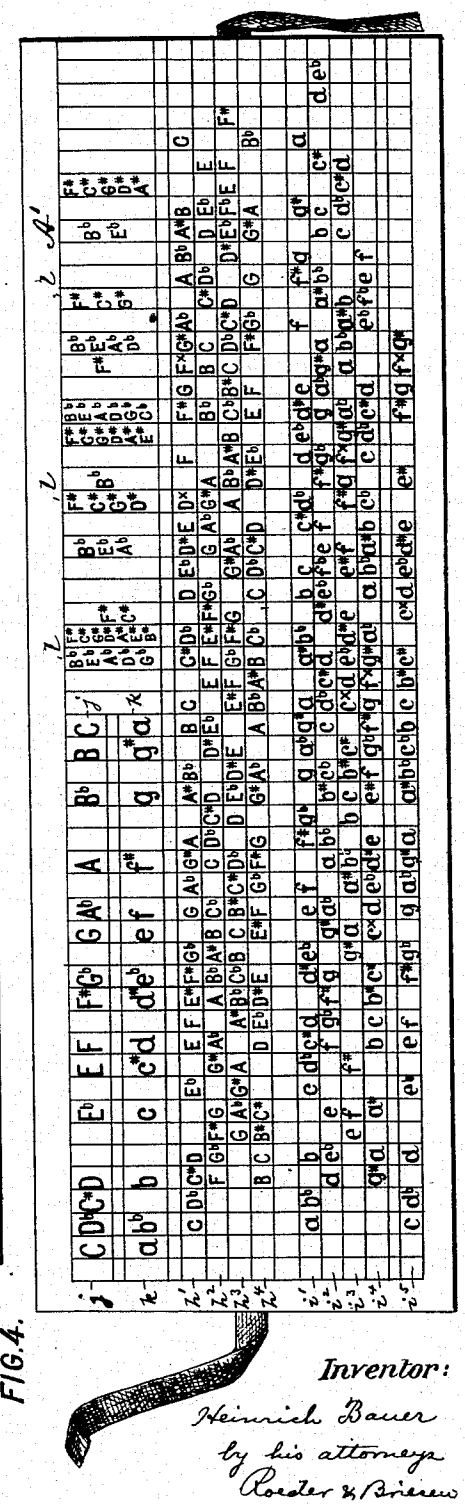


FIG. 4.

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(No Model.) 3 Sheets—Sheet 3.

FIG. 6.

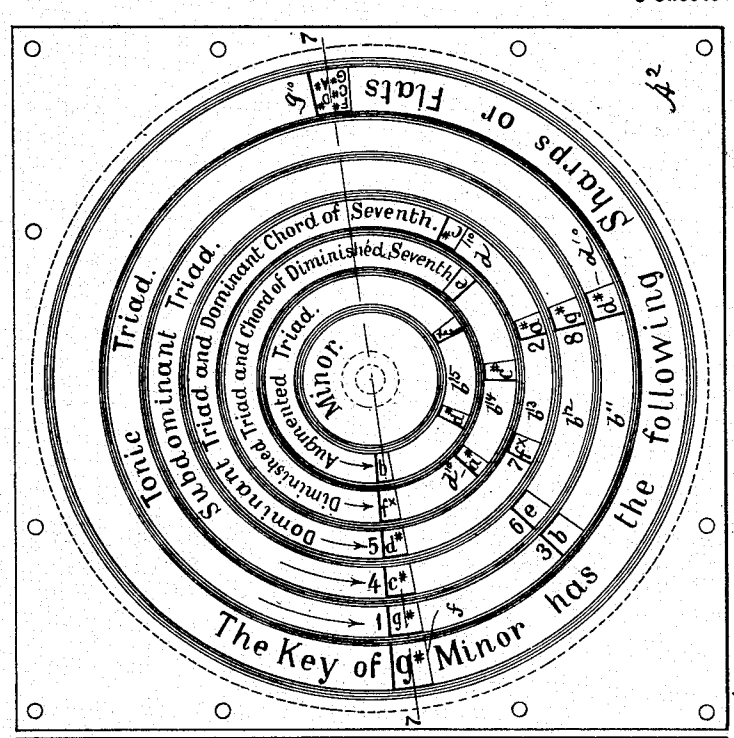


FIG. 7.

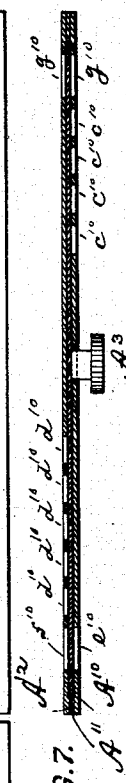
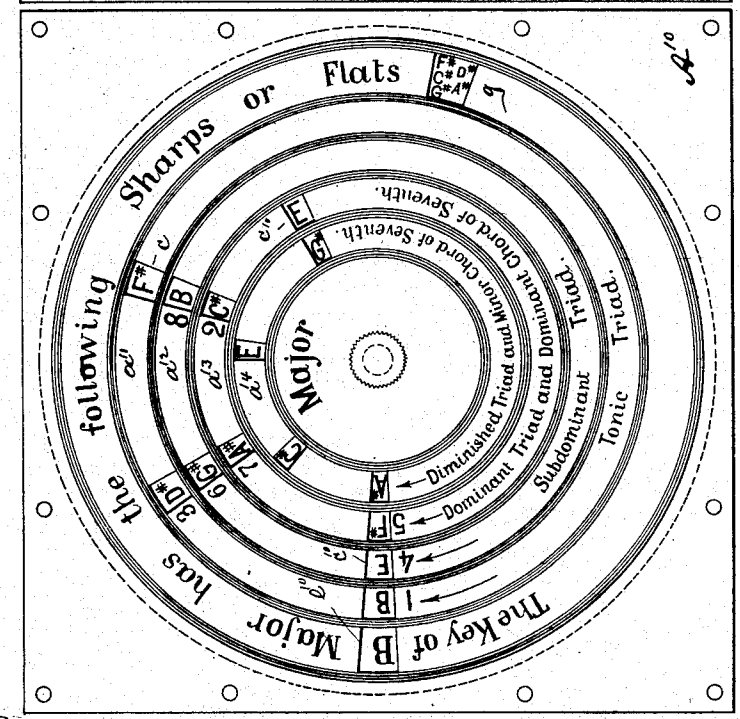


FIG. 5.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HEINRICH BAUER, OF NEW YORK, N. Y., ASSIGNOR TO SOHMER & COMPANY, OF SAME PLACE.

MUSIC-CHART.

SPECIFICATION forming part of Letters Patent No. 675,345, dated May 28, 1901.

Application filed February 19, 1901. Serial No. 47,895. (No model.)

To all whom it may concern:

Be it known that I, HEINRICH BAUER, a citizen of the United States, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Music-Charts, of which the following is a specification.

This invention relates to a music-chart or a preparatory manual of harmony by which a student of music or the player of a musical instrument will be able to ascertain accurately the chords for any key in which he may desire to write or play. The chart is so constructed that by a short movement of a slide or transposer the various chords of the key-note are exposed, while all the other notes are concealed. The notes are so arranged on the transposer that successive chords are successively presented by a movement of the transposer less than the distance between the first and last note of the chord last presented.

In the accompanying drawings, Figure 1 is a face view of my improved music-chart, showing it set to a D-major or the corresponding B-minor key. Fig. 2 is a cross-section on line 2 2, Fig. 1. Fig. 3 is a face view of the face-plate A with the slide or transposer removed. Fig. 4 is a face view of the transposer A′ detached. Fig. 5 is a face view of a modification of the music-chart; Fig. 6, a rear view thereof; and Fig. 7, a cross-section on line 7 7, Fig. 6.

With particular reference to Figs. 1 to 4, the letter A represents the face-plate of the music-chart, and A^2 is the back plate, Fig. 2, between which is formed a pocket for the reception of the slide or movable transposer A′.

The face-plate A is ruled longitudinally to form a series of subdivisions or rows a' a^2 a^3 a^4 and b' b^2 b^3 b^4 b^5, of which the divisions a' to a^4 are designed to indicate the principal major chords, while the divisions b' to b^5 are to indicate the corresponding minor chords. The divisions a' to a^4 are therefore collectively marked "Major key" and are individually marked at the left end with the appellations of the chords which they are to indicate, viz: "Tonic triad," "Subdominant triad," "Dominant chord of the seventh," and "Diminished triad and minor chord of the seventh." The divisions b' to b^5 are collectively marked "Minor key" and are individually marked "Tonic triad," "Subdominant triad," "Dominant chord of the seventh," "Diminished triad and chord of diminished seventh," and "Augmented triad."

Each of the subdivisions a' to a^4 and b' to b^5 is provided with a number of perforations c and d, respectively, through which a part of the underlying slide A′ is exposed. These perforations are spaced differently for each subdivision, the spacing being as follows, taking the width of the perforation c or d as a unit: in division a', seven units between first and second perforations, five units between second and third perforations; in division a^2, seven units between first and second, five between second and third; in division a^3, seven between first and second, five between second and third, five between third and fourth; in division a^4, five between first and second, five between second and third, seven between third and fourth; in division b', five between first and second, seven between second and third; in division b^2, five between first and second, seven between second and third; in division b^3, seven between first and second, five between second and third, five between third and fourth; in division b^4, five between first and second, five between second and third, five between third and fourth; in division b^5, seven between first and second, seven between second and third. Furthermore, the first perforations in divisions a^2 and a^4 are set two units to the right of first perforation in division a', while first perforation of division a^3 is set four units to the right. First perforation in division b^5 is set directly beneath first perforation in division b'. First perforations in divisions b^2 b^4 are set two units to the right. First perforation in division b^3 is set four units to the right.

The perforations are respectively marked as follows: in division a', "1," "3 major third," "Perfect fifth;" in division a^2, "4," "6 major third," "8 perfect fifth;" in division a^3, "5," "7 major third," "2 perfect fifth," "Minor seventh;" in division a^4, blank, "Minor third," "Diminished fifth," "Minor seventh;" in division b', "1," "3 minor third," "Perfect fifth;" in division b^2, "4," "6 minor third," "8 perfect fifth;" in division b^3, "5,"

"7 major third," "2 perfect fifth," "Minor seventh;" in division b^4, blank, "Minor third," "Diminished fifth," "Diminished seventh;" in division b^5, blank, "Major third," "Augmented fifth."

In addition to the perforations *c* and *d* the face-plate A is provided with three perforations *e*, *f*, and *g*. Of these the perforation *e* is designed to show the major foundation or key note to which the entire chart is set. *f* shows the corresponding minor foundation or key note, and *g* shows the signatures.

The slide A', Fig. 4, is provided with nine rows of notes h' h^2 h^3 h^4 and i' i^2 i^3 i^4 i^5, placed, respectively, under the divisions a' to a^4 and b' to b^5, so that the uncovered figures of any one row may be read through the perforations of the superposed division. The peculiarity in the arrangement of the notes in each row is that by a movement of the slide less than the distance between the first and last note of any exposed chord another chord will be exposed, while all the other chords will be concealed. Thus by successively drawing the slide one unit to the left the various successive chords will be exposed. To obtain this result, the notes in each row must be so arranged that the unit distances between the notes of any one chord are equal to the unit distances between the notes of any other chord on the same row and that, furthermore, the notes of the different chords are placed between the notes of other chords. Thus, to illustrate, for the tonic-triad line a' h' the first note on line h' is C, the note after the seventh unit (corresponding to the distance between the first and second perforation on line a' of plate A) is E, and the note after the fifth unit from E (corresponding to the distance between the second and third perforations on line a' of plate A) is G. Thus when the chart is set to expose the foundation or key note C at the first perforation the tonic triad C,E,G for such note will be shown. Now one unit to the right of note C there is marked on slide A' the note D♭, while F is marked to the right of E, and A♭ is marked to the right of G. Thus by moving the slide A' one space to the left the notes D♭ F, A♭ will be exposed, which is the tonic triad of the key-note succeeding C—viz., D♭. In a similar manner any other chord may be formed by moving the slide into such a position that the key-note is exposed through the first perforation of row a'.

In order to obtain the result described, the notes cannot always be placed side by side, some blank spaces being necessary, two blanks being, for instance, formed between D and E♭, one blank between E♭ and E, &c., all as more fully represented in Fig. 4.

Simultaneously with exposing the tonic triad in the line a' the other major chords of the same key-note are exposed in the lines a^2 to a^4, while the chords of the relative minor key will be exposed in the lines b' to b^5. To effect this result, the notes for each of the chords are arranged in a manner similar to that described in relation to the line a'—viz., the unit-spaces between the notes for any one chord are equal to the spaces between the notes of any of the other chords for the same line and equal to the spaces between the corresponding perforations of plate A, while, furthermore, the notes of any one chord are placed between the notes of other chords. Besides thus readily ascertaining the various chords pertaining to any one key-note, the diatonic scale of such note is also exposed through the openings marked successively "1" to "8." Thus Fig. 1 shows the chart set to D-major and the corresponding B-minor key. The tonic triad of the major key is D, F♯, A, the subdominant triad G, B, D, &c., while the diatonic major scale ascertained by following the numerals "1" to "8" is shown to be D, E, F♯, G, A, B, C♯, D. In similar manner the other chords of the major key, as well as the chords of the corresponding minor key and the diatonic scale of the minor key, are ascertained.

Of course the key-note for each chord will be shown through the first perforations of the top lines a' and b'; but I prefer to form two additional rows *j* and *k* upon the slide A', to be exposed through the perforations *e* and *f* of the face-plate A. These additional key-notes have for their object to facilitate the setting of the chart, the slide being moved until the note desired is exposed through the opening *e* or *f*.

To the right of the notes *j* and *k* the slide A' is provided with upright rows of signatures *l*, the sharps and flats being thus exposed for each key-note through the opening *g*.

Figs. 5 to 7 illustrate a modification of the invention, in which the transposer in lieu of being a slide is a rotatable disk A^{11}, that may be turned by means of a knob A^3. The top and bottom plates A^{10} and A^{12} are also made disk-shaped, and all the rows a^{11} to a^{14}, as well as the rows b^{11} to b^{15}, are made in the form of concentric circles. In order to reduce the size of the chart, the major chords are represented on the top plate A^{10}, while the minor chords are represented upon the bottom plate A^{12}. Thus when the chart has been set to the foundation-key desired the major chords are read off from one side, and then the chart is reversed to ascertain the relative minor chords from the other side.

c^{10} represents the perforations in the rows a^{11} to a^{14}, and d^{10} the perforations in the rows b^{11} to b^{15}.

e^{10} is the perforation for exposing the major foundation-note, f^{10} the perforation for the minor foundation-note, and g^{10} the perforation for the signatures.

What I claim is—

1. In a music-chart, the combination of a face-plate having a row of perforations arranged to correspond with the intervals of the chord, with a movable transposer having a row of notes, the notes of each chord being

spaced equally with the notes of other chords in said row, and being placed intermediate the notes of other chords, substantially as specified.

2. In a music-chart, the combination of a face-plate having rows of perforations, with a movable transposer having rows of notes, the notes for any one chord being spaced equally with the corresponding perforations of the face-plate, and being arranged intermediate the notes of other chords, substantially as specified.

3. In a music-chart, a face-plate having a perforated tonic-triad row, a perforated subdominant-triad row, a perforated dominant-chord-of-the-seventh row, and a perforated diminished-triad and chord-of-the-seventh row, combined with a movable transposer having corresponding rows of notes, the notes forming the chords for any one key-note being simultaneously exposed through the perforated rows of the face-plate, and being placed intermediate the notes of other chords, substantially as specified.

Signed by me at New York city, county and State of New York, this 18th day of February, 1901.

HEINRICH BAUER.

Witnesses:
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F. V. BRIESEN.