(No Model.) 2 Sheets—Sheet 1.

W. T. WEIR.

HARMONIC ATTACHMENT FOR KEY BOARD MUSICAL INSTRUMENTS.

No. 304,981. Patented Sept. 9, 1884.

Fig. 1.

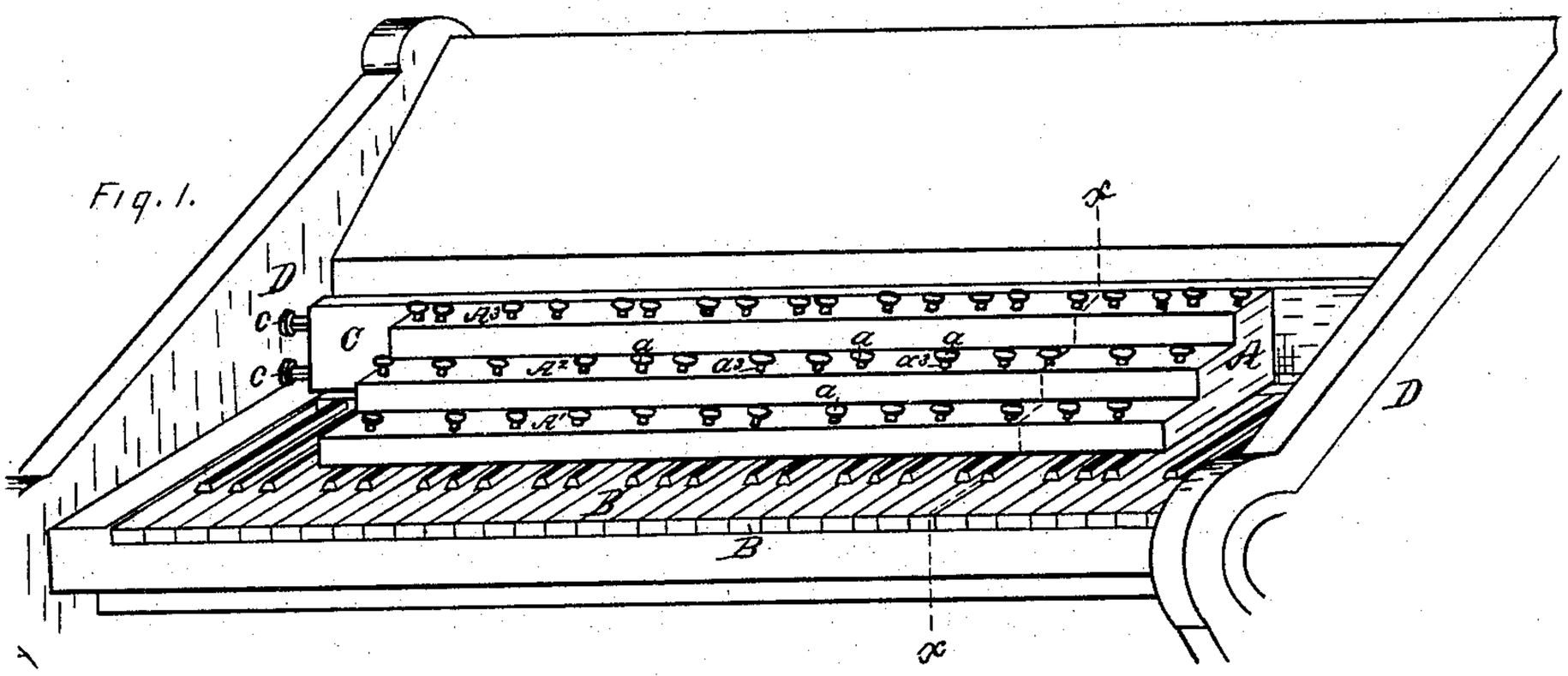


Fig. 2.

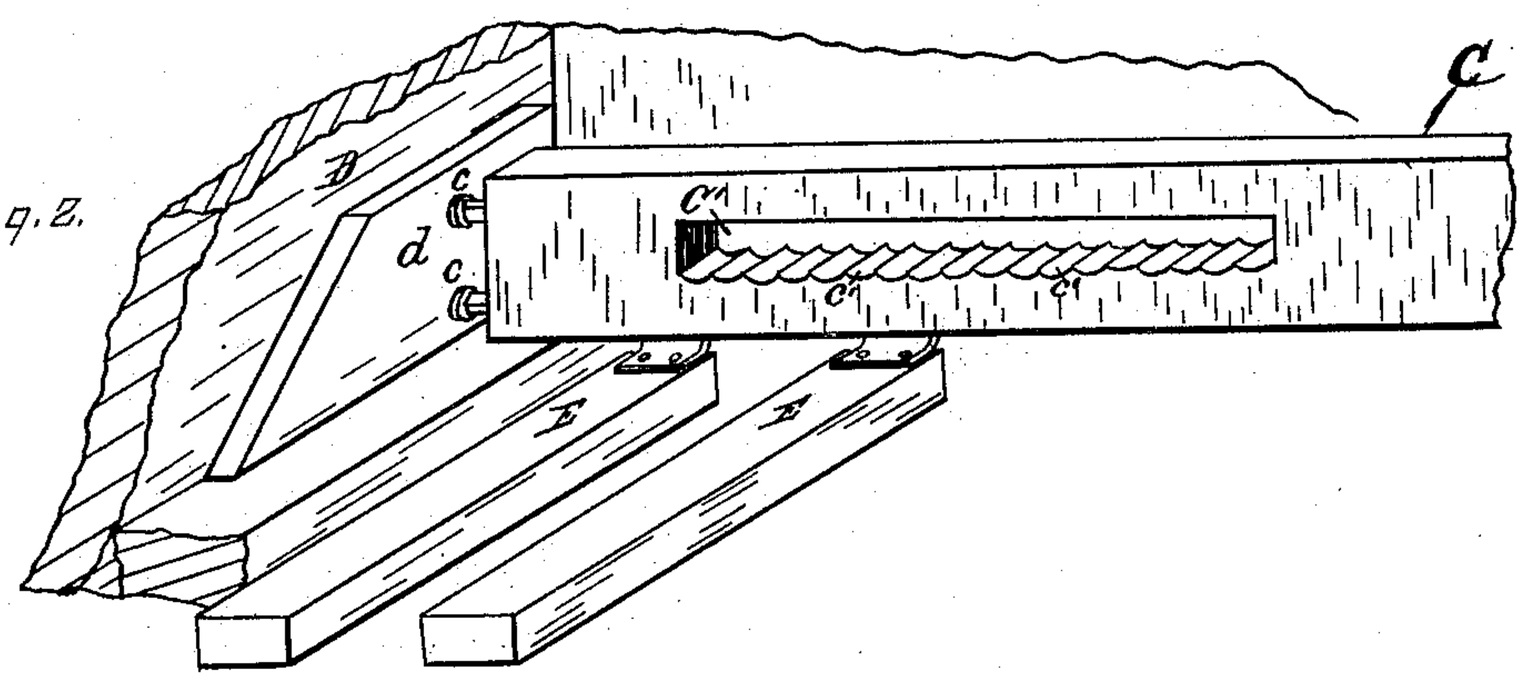
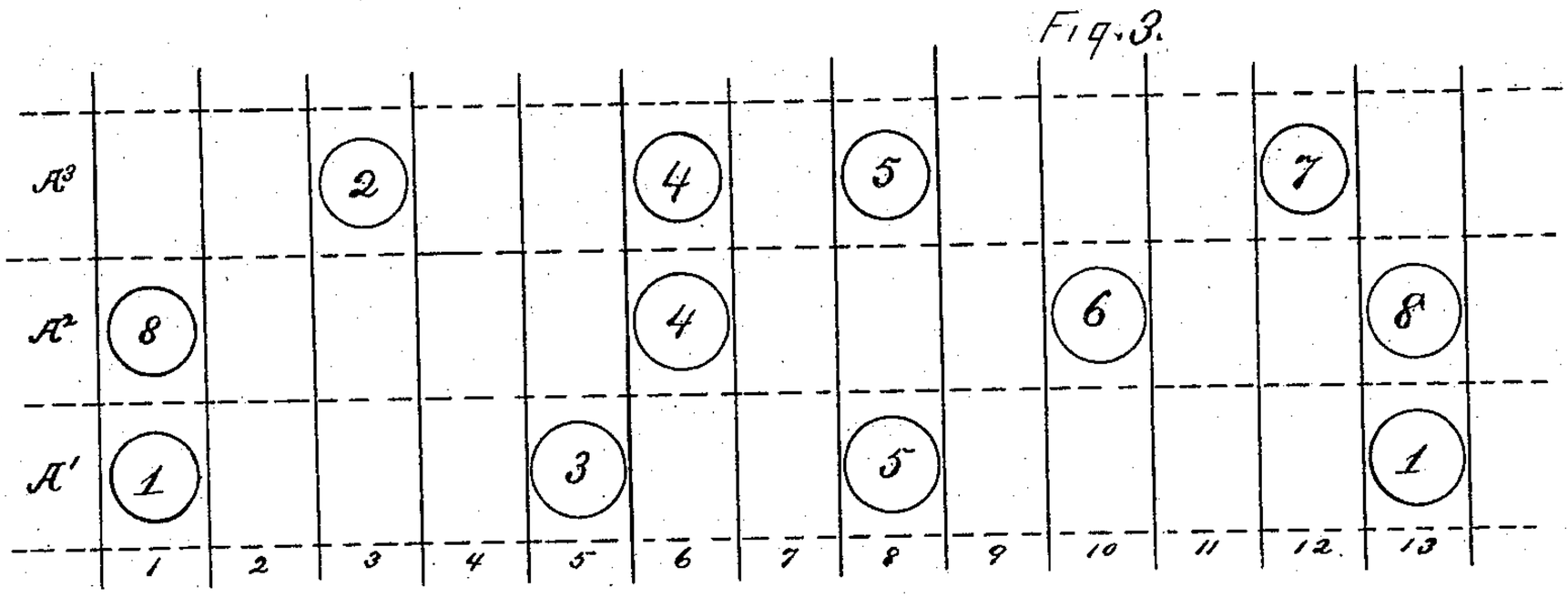


Fig. 3.



WITNESSES:

Charles H. Roberts.

James Rosenthal

INVENTOR:

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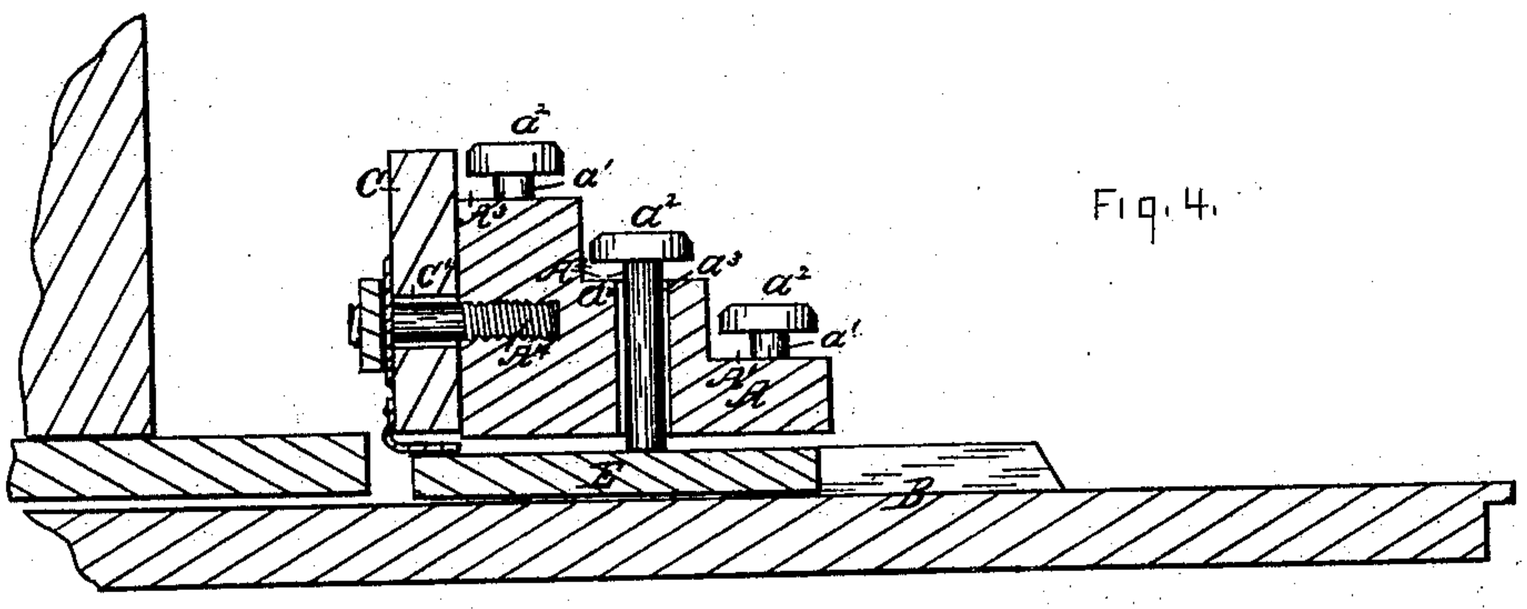
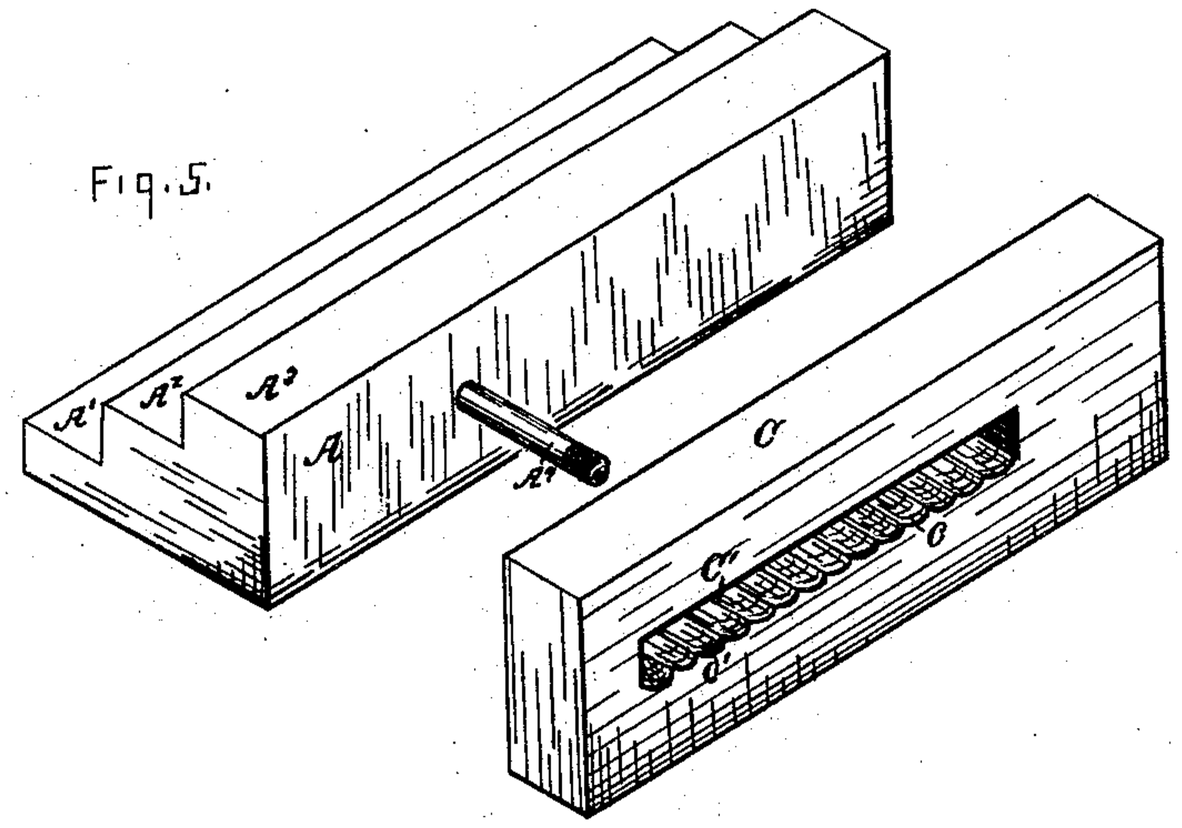


Fig. 4.

Fig. 5.



WITNESSES:

Charles H. Roberts

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INVENTOR:

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UNITED STATES PATENT OFFICE.

WORTHINGTON T. WEIR, OF SPRING HILL, ILLINOIS.

HARMONIC ATTACHMENT FOR KEY-BOARD MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 304,981, dated September 9, 1884.

Application filed December 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, WORTHINGTON T. WEIR, of Spring Hill, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Harmonic Attachments for Key-Board Musical Instruments; and I do hereby declare that the following is a full, clear, and correct description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to harmonic attachments for key-board musical instruments, and has special reference to a supplemental key-board designed to be used upon the ordinary key-board of an organ or piano.

The object of the invention is to provide a removable supplemental transposition key-board adapted for temporary attachment over the ordinary chromatic key-board of organs or pianos of varying sizes, and in which key-boards the keys have a twofold arrangement—first, according to the major or minor scale, and, second, according to the harmonic divisions—in order that a person who is not an accomplished musician may be enabled to more readily play the simpler grades of music, the transposition of the key-board enabling him to play music written in any key in the same or in a higher or lower key with the same execution as though it were in the natural key, and the arrangement of the keys according to the harmonic divisions enabling him to readily find the notes which the music indicates are to be sounded simultaneously.

To these ends the invention consists in the matters hereinafter set forth, and more particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the upper portion of an organ having one of my supplemental key-boards. Fig. 2 is a detail view showing a portion of the organ with the supplemental key-board removed to expose a removable horizontal bar, to which the key-board and a series of false keys are attached. Fig. 3 is a plan view of an octave of my supplemental key-board. Fig. 4 is a transverse sectional view in the line $x\ x$ of Fig. 1. Fig. 5 shows the attachment between the fixed bar and the key-board.

For convenience in description, I use herein the terms "harmonic divisions" and "tonic," "subdominant," and "dominant" divisions. The term "tonic division" designates, collectively, all the chords or triads of the tonic in the several octaves of the musical scale. The term "subdominant division" designates, collectively, all the chords or triads of the subdominant in the several octaves. The term "dominant division" designates, collectively, all the chords of the dominant seventh in the several octaves; and the term "harmonic divisions" designates, collectively, the three divisions above named.

In the drawings, A, Figs. 1, 3, 4, and 5, is my supplemental key-board. In Fig. 1 it is shown in position for use over the black keys of the ordinary key-board, B, of an organ. In Fig. 3 a portion of the top is shown, and in Fig. 4 it appears in transverse section. Its top surface is divided into three longitudinal parallel banks or stages, A' A^2 A^3, each of which is provided with a row of holes, a^3, passing vertically through the board, in each of which rests loosely a key, a, consisting of the shaft a' and the head a^2. Said key-board A is made one octave shorter than the key-board B of the organ, in order that it may be shifted laterally, as will be hereinafter shown, and only a sufficient number of holes a^3 are made therein to receive the keys of the major scale, and to fully represent the harmonic divisions of chords, and these are placed in the banks A' A^2 A^3, (which represent, respectively, the tonic, subdominant, and dominant divisions of chords,) as shown in Fig. 3, in which the series of spaces 1 to 13 represent the half-steps of the chromatic scale. The numerical key 1 is placed in the bank A' and half-steps 1 and 13. The numerical key 2 is placed in bank A^3 and half-step 3; the numerical key 3 in bank A' and half-step 5; the numerical key 4 in banks A^2 and A^3 and half-step 6; the numerical key 5 in banks A' and A^3 and half-step 8; the numerical key 6 in bank A^2 and half-step 10; the numerical key 7 in bank A^3 and half-step 12, and the numerical key 8 in bank A^2 and half-steps 1 and 13.

C is a longitudinal bar, secured rigidly at the

rear of and a little above the key-board B, and supports the supplemental board A in such manner as to allow the latter to be shifted to the right or left, and as to expose the outer ends of the black and white keys of the board B. Said bar C may be secured to the organ in any suitable manner; but I prefer the mode herein shown, which consists in providing one or both of the ends of the bar with threaded extension-bolts *c*, which, on being withdrawn, press against the ends D of the organ or an interposed block, *d*. By this means the bar C may be readily raised or lowered or shifted backward or forward. The key-board A is adjustably secured to the bar C by means of a bolt, A^4, fixed in the back thereof and passing through a longitudinal slot, C′, in the bar C, said slot C′ being preferably provided with notches *c*′, in which the bolt A^4 may rest.

E E are a series of blocks or false keys lying loosely upon the white keys in the spaces between the black keys of the key-board B, the height of said false keys being equal to that of the black keys, thus making an even surface beneath the board A. Each of said false keys is attached by its rear end to the lower edge of the bar C by means of a strip of leather, felt, or other suitable flexible material, such strip being long enough to allow said block to rise and fall bodily with the true key beneath it. By this arrangement the false keys are always lifted from the organ when the bar C is removed, and when said bar is replaced said keys are properly distributed upon the true board, and they will need no attention to keep them in place. The lower ends of the keys *a* *a* each rest on one of the false keys (thus resting indirectly on the white keys) or on one of the black keys of the key-board B, and each particular key always represents the same number of the numerical scale, the key representing the key-note always bearing the number 1, no matter in what position the board A may be, the next to the right always representing 2, and so on through each octave; and each key may have marked upon it the number it represents. If it be desired to play a piece in any other key, either higher or lower than that in which it is written, it is only necessary to set a key *a* No. 1 over the key in the true board selected for the key-note.

In playing, should the music be written in the natural key, or key of C major, the board A, by means of its adjustable fastening to the bar C, is shifted to the right or left until a key *a* No. 1 rests on middle C, the notches *c*′, which are spaced the same as the half-steps, aiding in placing it exactly over the center of said key. The music is then played with reference to key as though the true board B were being used. If the music be written in any other key than the natural, the board A is shifted until a key *a* No. 1, rests on the key in the board B representing the key-note, when the keys *a* *a* will rest over the proper half-notes in the board B to make a major scale in that particular key, and the music is then played on the keys *a* *a* without reference to transposition, or as though it were written in the natural key.

The arrangement of the keys *a* into harmonic divisions, as shown, enables the player to readily find the notes on the board which harmonize. For example, if he uses one or more notes in the upper half of the tonic row, and desires to use one or more bass notes which shall harmonize with said upper notes, all that is necessary is to follow the lower portion of said row with the left hand and use such of the keys in said row as he may desire; or, if it be desired to make a "run" on either chord, it is simply necessary to follow the row forming the particular chord or harmonic division as far as desired.

A sufficient portion of the outer ends of the black and white keys of the board B should be left exposed in front of the key-board A, as shown in the drawings, to enable the player to see all of said keys, and thus be assisted in learning the harmonic relations of the same, or to play upon them without removing the supplemental board, if so desired; but for the purpose of execution alone the player need not (except in case of accidentals) in any manner rely upon the keys of the true board. If the supplemental board is arranged for the major scale, it will contain all the keys needed for all pieces written in the major scale, unless there should be accidentals, and if there are accidentals they may be struck on the true board; but as this board is intended to be used chiefly by persons who play only the simpler grades of music, in which accidentals seldom occur, it is deemed unnecessary to consider them.

The arrangement of the keys *a* of the board A may be changed to the minor scale by moving the keys 3 and 6 a half-step to the left; and the board A should be provided with extra holes in the half-steps 4 and 9, Fig. 3, to receive said keys when it is desired to play in the minor key.

By making certain modifications, my supplemental board may be placed permanently on an organ; but, as this is designed to constitute the subject-matter for a separate application for patent, I shall not describe the same herein.

I am aware that a supplemental key-board having a chromatic scale similar in every respect to the ordinary organ key-board has heretofore been arranged adjustably upon an organ for the purpose alone of effecting a mechanical transposition of the music.

I am also aware that in a key-board for accordions and similar instruments keys have been arranged in rows representing the tonic, subdominant, and dominant divisions, and these rows divided into sections or groups to form chords, each section containing a small number of chords in one particular key; but in this latter device the keys in one section hold no relation to those in any other—that is

to say, there is no serial arrangement of the keys into either a chromatic, major, or minor scale. Said device cannot, therefore, be used for playing melodies, and to only a limited extent in playing chords.

I claim as my invention—

1. The adjustable key-board A, the vertical shaft keys *a a*, the bolts A^1, and the bar C, in combination, substantially as shown and set forth.

2. The adjustable supporting-bar C, the key-board A, and the bolt A^1, in combination, substantially as shown and described.

3. The combination of the bar C, bolts *c*, and block *d*, substantially as shown, and for the purposes described.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

WORTHINGTON T. WEIR.

Witnesses:

CYRUS KEHR,

CHARLES H. ROBERTS.