BEST AVAILABLE COPY

W. M. MELING.

MUSICAL TRANSPOSING CHART.

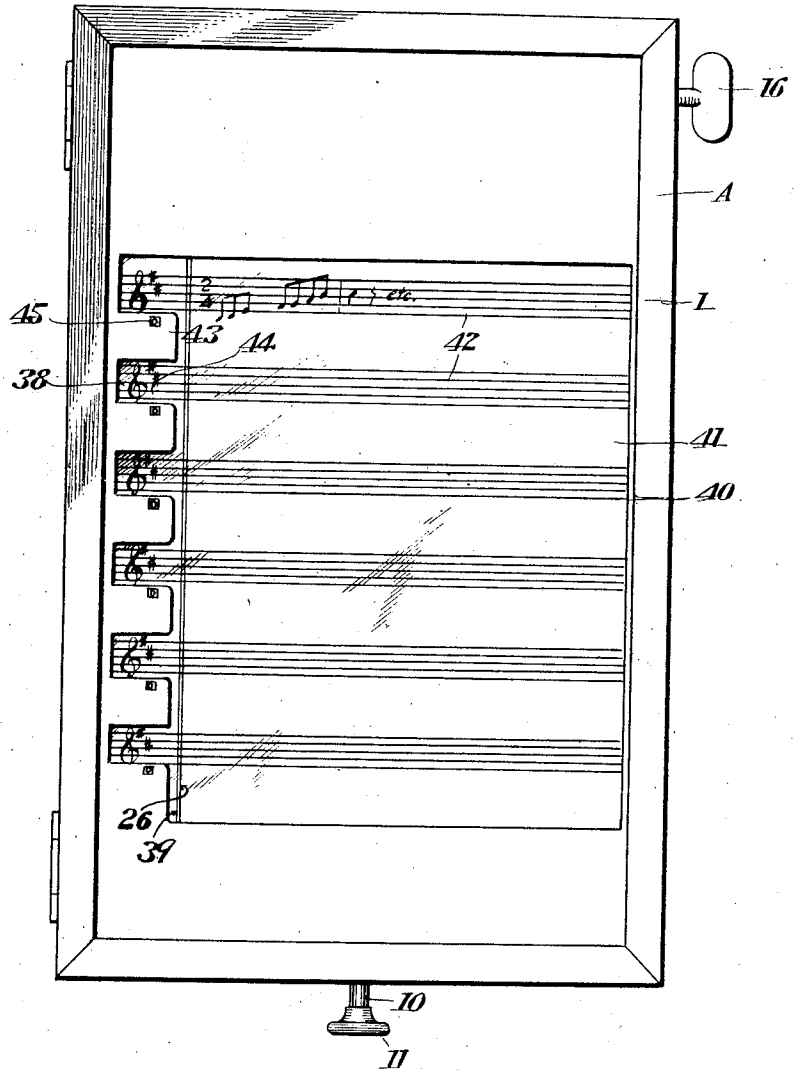
APPLICATION FILED AUG. 5, 1919.

1,436,771.

Patented Nov. 28, 1922.

4 SHEETS—SHEET 1.

Fig. 1.



Inventor

Waldemar M. Meling

By Victor J. Evans

Attorney

Witnesses

M. A. Shifley

Edwin Bowles.

W. M. MELING.

MUSICAL TRANSPOSING CHART.

APPLICATION FILED AUG. 5, 1919.

1,436,771.

Patented Nov. 28, 1922.

4 SHEETS—SHEET 2.

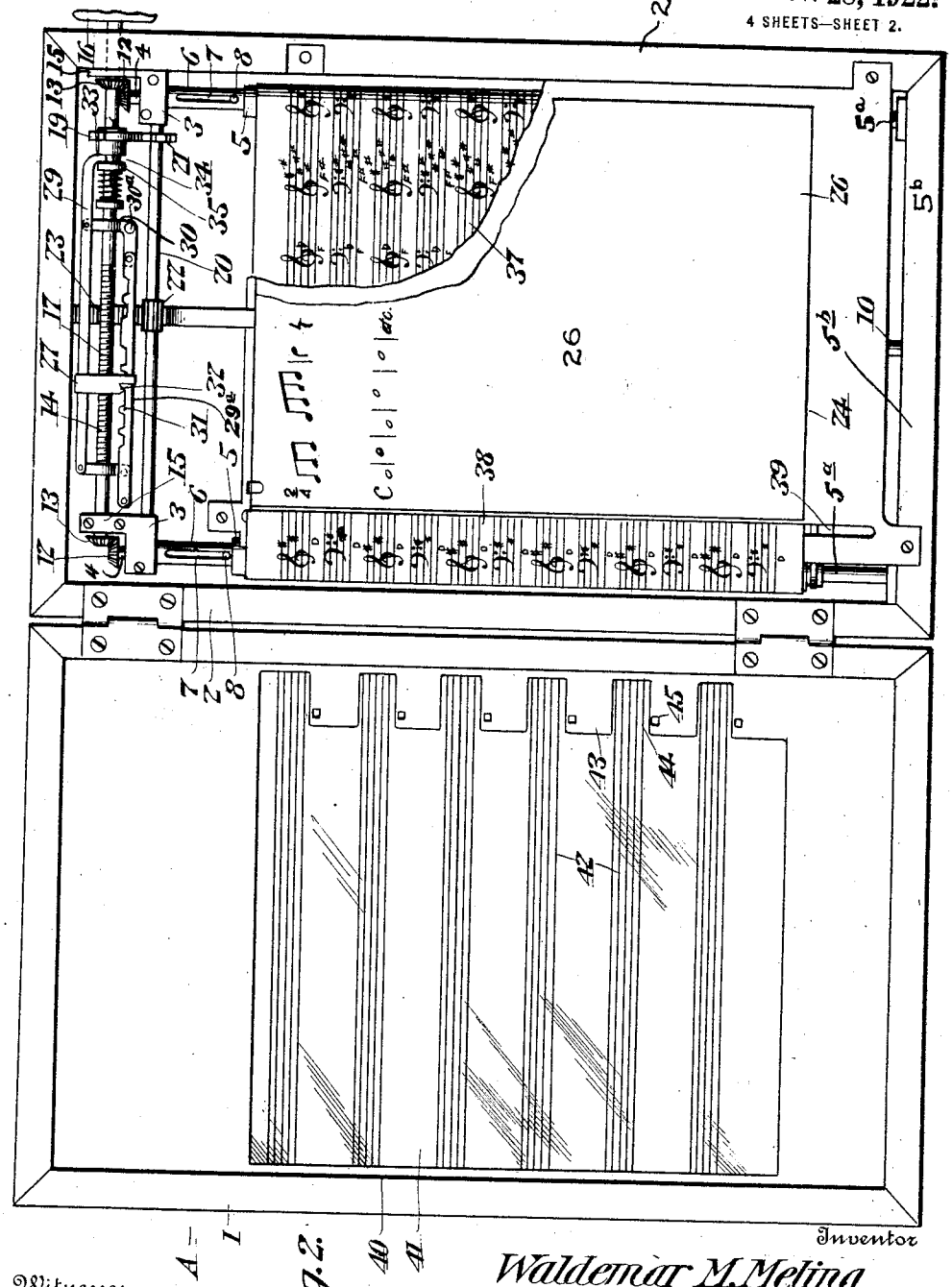


Fig. 2.

Witnesses

M. H. Shafer

Edwin D. Foules

Inventor

Waldemar M. Meling

By Victor J. Evans

Attorney

W. M. MELING.

MUSICAL TRANSPOSING CHART.

APPLICATION FILED AUG. 5, 1919.

1,436,771.

Patented Nov. 28, 1922.

4 SHEETS—SHEET 3.

Fig. 3

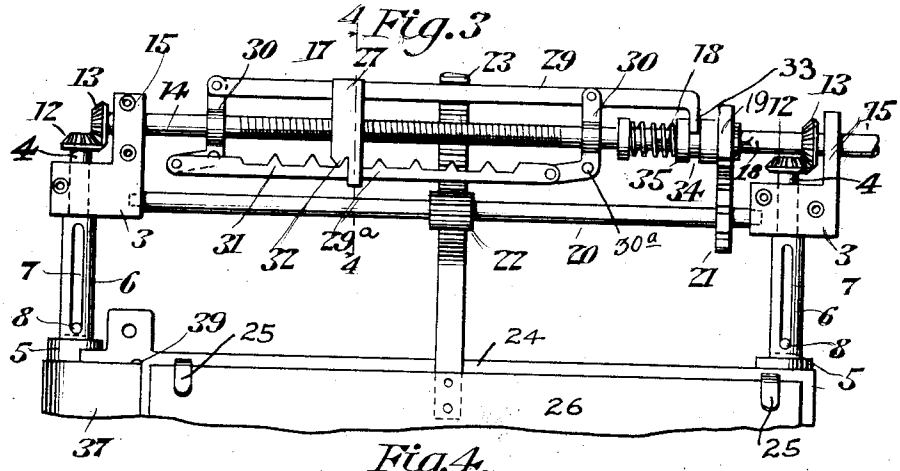


Fig. 4.

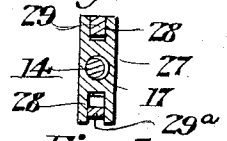


Fig. 5.

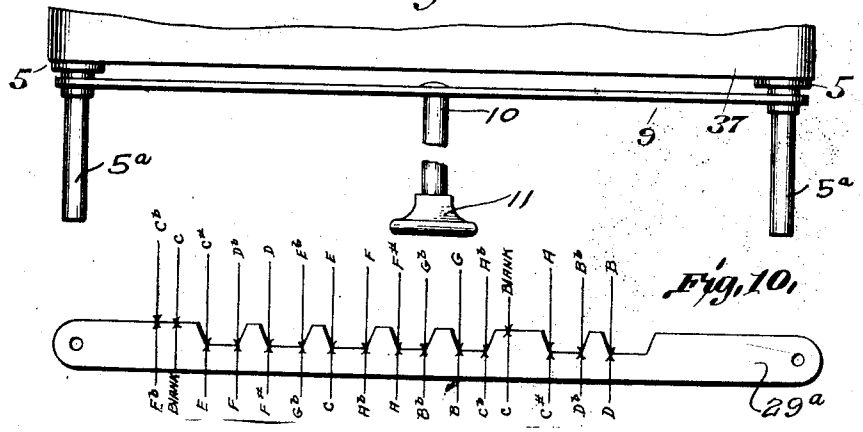


Fig. 10.

Witnesses

M. H. Sliger.

Edwin L. Smith.

Inventor

Waldemar M. Meling

By Victor J. Evans

Attorney

W. M. MELING.

MUSICAL TRANSPOSING CHART.

APPLICATION FILED AUG. 5, 1919.

1,436,771.

Patented Nov. 28, 1922

4 SHEETS—SHEET 4.

Fig. 6.

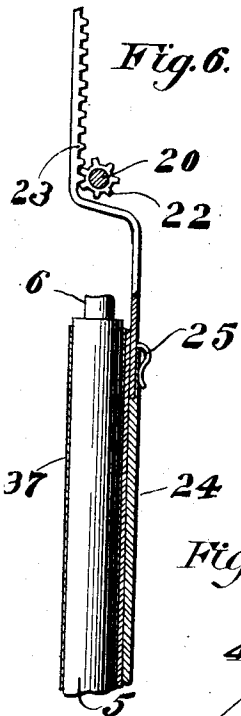


Fig. 7.

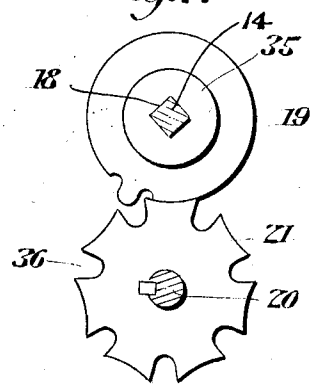


Fig. 8.

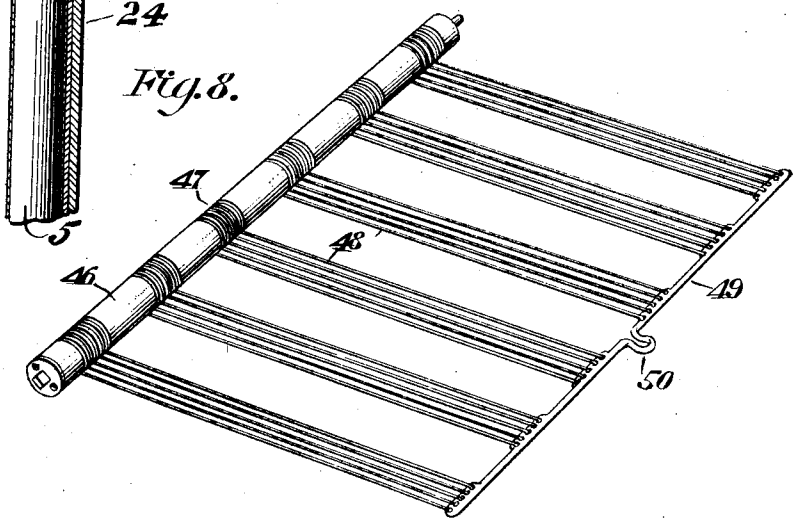
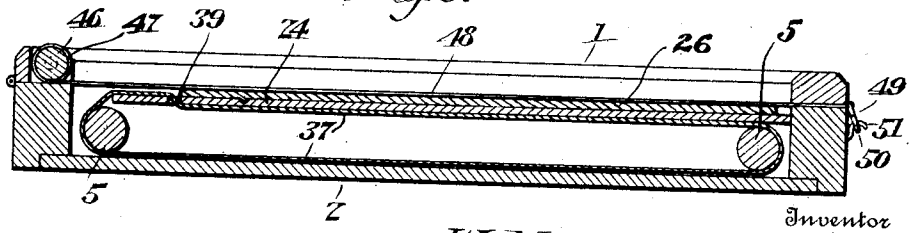


Fig. 9.



Inventor

Waldemar M. Meling

Witnesses

M. H. Shipley

Edwin H. Foulds

By Victor J. Evans

Attorney

Patented Nov. 28, 1922. 1,436,771

UNITED STATES PATENT OFFICE.

WALDEMAR M. MELING, OF NEW YORK, N. Y.

MUSICAL TRANSPOSING CHART.

Application filed August 5, 1919. Serial No. 315,571.

To all whom it may concern:

Be it known that I, WALDEMAR M. MELING, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented new and useful Improvements in Musical Transposing Charts, of which the following is a specification.

This invention relates to transposing charts for music, and is particularly useful for teachers for giving pupils numerous exercises in all of the clefs and keys from a single sheet of musical characters, the method of transposition being shown in a clear and concise manner whereby the pupil may readily learn to transpose.

The chief characteristic of this invention is to provide a chart of this character in which the musical characters may be easily and accurately transposed from one key to another without necessitating the operator first obtaining a thorough knowledge of transposition before operating this device.

Another important object of this invention is to provide a chart of this character in which the musical staff is arranged upon a separate sheet from that of the musical characters, whereby upon movement of the sheet bearing the musical characters, relatively to the first-named sheet, the composition will be changed from one key to another.

Another salient feature of this invention is to provide a key and signature belt which is cooperable with the sheet bearing the musical characters. When the belt is moved to indicate the key, the sheet will be held or moved as required to correctly locate the notes on the staff.

Another object of this invention is to provide a simple and efficient means for actuating the key signatures belt and controlling the action of the musical character sheet.

In carrying out my invention, it is my purpose to provide a panel to carry a sheet having the musical characters thereon and mounted for rectilinear movement, the panel being arranged between a pair of spaced rollers over which is trained a belt, the belt having vertical sets of key signatures thereon and adapted to be exposed, one set at a time, at the left-hand side of the sheet bearing the musical characters. Overlying the sheet bearing the musical characters and also overlying said exposed belt portion, is a transparent sheet upon which is scored a series of staffs whereby the characters upon the sheet carried by the panel will be given their positions upon the staffs. By moving the panel and the sheet bearing the musical characters transversely of these staffs, the characters will automatically assume a different key corresponding to the distance moved. That is to say, assuming that the characters are arranged in the key of C, and it is desired to transpose them into the key of D, the panel and sheet bearing the musical characters will be moved vertically so as to cause the key note of the key of C which is on the first line below the staff in the treble clef to move to the first space below the staff. It will thus be seen that all of the musical characters upon the panel will be correspondingly moved and thus change the characters from the key of C to the key of D. I am fully aware of the fact that it has hitherto been proposed to transpose musical characters by manipulation of panels and sheets, but as far as I am aware I am the first to transpose the characters by moving them transversely of a staff.

Other objects of the invention will appear as the specification is read in connection with the accompanying drawings, in which:

Figure 1 is a front elevation of my chart constructed in accordance with my invention.

Figure 2 is a front elevation of my device showing the casing open.

Figure 3 is a detail view of the mechanism for moving the panel and belt.

Figure 4 is a transverse section taken on the line 4—4 of Figure 3.

Figure 5 is a detail view of the rollers and belt.

Figure 6 is a detailed transverse sectional view of the panel and belt and of the shaft having the roller which co-acts with the rack bar in shifting the panel belt and rollers which carry the belt.

Figure 7 is a detailed view showing the shafts 14 and 20 in cross-section, and the gears 19 and 21 in elevation.

Figure 8 is a detailed perspective showing a modified form of the staff element.

Figure 9 is a horizontal section showing the application of said modification.

Figure 10 is an inlarged view of the bar 29^a per se.

Similar letters designate corresponding parts in Figures 1—7 to which reference will first be had.

A designates a rectangular casing formed of front and rear sections 1 and 2, respectively, which are hingedly connected to each other to permit of ready access to the interior of the casing. Mounted within the rear section 2 at the inner sides of the side walls thereof are bearings 3, Figures 2 and 3, in which are disposed stub shafts 4 having pins 8. Arranged in axial alinement with and below the stub shafts 4 are rollers 5 to the upper ends of which sleeves 6 are fixed; the said sleeves 6 being movable endwise on the shafts 4 and through the inwardly-reaching portions of the bearings 3, and being equipped with slots 7 that receive the pins 8 so that the shafts 4 and rollers 5 will turn together. The lower ends of the rollers 5 are movable endwise upon journals 5^a, carried by and extending upwardly from the lower end wall 5^b of the casing section 2. Connected to and extending between the lower portions of the rollers 5, so as to move up and down therewith, is a bar 9 from which a rod 10 extends downwardly and through the wall 5^b, and is equipped with a handle 11. Manifestly vertical movement of the rollers 5 will attend vertical movement of the rod 10.

Fixed to the stub shafts 4 are beveled gears 12 intermeshed with beveled gears 13, fixed on a shaft 14, journaled in vertical extensions 15 on the bearings 3. One end of the shaft 14 is extended through one side wall of the section 2 and terminates in a handle 16. It will be seen from this construction that upon rotation of the shaft 14 the rollers 5 will be rotated synchronously in the same direction. The shaft 14 has its intermediate portion appropriately threaded as at 17, while a portion of the shaft adjacent to its right-hand end is squared in cross-section as at 18 to receive a slidable gear 19. Journaled in and extending between the bearings 3 is a shaft 20 which is provided adjacent to the right-hand end thereof with a gear 21, the latter adapted to be engaged by the gear 19, whereby a turning movement will be imparted to the shaft 20 when the shaft 14 is rotated. The shaft 20 is also provided with a gear 22 intermeshed with a vertically arranged rack bar 23. The lower end of the rack bar is secured to a panel 24 upon which the sheet 26 bearing the musical characters is to be placed, the panel being provided at its upper end with retaining members or clips 25 which serve to hold the sheet 26 in proper position on the panel. The panel 24 is of such a length as to permit rectilinear movement of the same when the rack bar 23 is moved through the medium of the gear 22 and the shaft 20. Thus it will be seen that I have provided means for rotating the rollers and simultaneously moving the panel 24.

In order to move the panel and rollers a predetermined distance when transposing a series of musical characters from one key to another, the shaft 14 has mounted thereon a nut 27 in engagement with the threaded portion 17 thereof. Said nut 27 is provided at its upper and lower ends with transversely extending grooves 28, Figure 4, which receive rods 29, 29^a. These rods are arranged above and below the shaft 14 and in parallel relation thereto, and are connected by means of bell crank levers 30, pivotally mounted at 30^a, the vertical portions of the levers 30 being partially arcuate and receiving in their arcuate portions the shaft 14 is clearly shown in the drawings. The lower rod 29^a is provided upon its upper edge with a series of teeth 31, any one of which is engageable with a lug 32 formed on the lower end of the nut 27. The right-hand end of the upper rod 29 is provided with a depending arm 33, disposed in a groove 34 formed in a collar 35, the latter being integral with the gear 19.

Attention is directed to the fact that the gear 19 is provided with only one tooth, Figure 7, while the gear 21 is provided with a series of spaced notches 36, any one of which is adapted to receive the tooth of the gear 19 as will be understood.

In the device as shown the gear 21 will be moved one-seventh of a turn to rotate the shaft 20 a corresponding distance, whereby the panel 24 will be moved to cause a corresponding shifting of the musical characters, as will be hereinafter described as is necessary in connection with gear 22 to produce the desired vertical movement of the sheet. Although I have described the specific means of actuating the rollers and panel, I wish it to be clearly understood that any suitable means may be employed for obtaining this result, without departing from the spirit and scope of this invention.

With particular reference to Figure 3 it will be understood that in practice the proper proportion of the elements will be important inasmuch as for every turn of the handle 16 and the shaft 14 the rollers 5 will make one turn and the belt 37 will be advanced a distance equal to the circumference of each roller 5. This distance should be the same as that between indicia as F G on Figure 2. Moreover at each turn of the gear 19 the gears 21 and 22 should be turned one-seventh of a turn to shift the panel 24 through half the distance between the lines of the staffs.

Trained over the rollers 5 and connecting the same is a belt or apron 37 which has im-

printed thereupon staffs and vertical sets of bass and treble clefs and the signatures of the several keys, the corresponding key and signature on one staff being in vertical alinement with the signatures upon the remaining staffs, while the treble and bass clefs are arranged alternately throughout the vertical series, as is clearly shown in Figure 2 of the drawings. Arranged directly below each of the clef marks are the letters indicating the respective names of the keys which are to be exposed with the clef and key signatures, as will be hereinafter described. The stretch of the belt 37 between the rollers 5 is adapted to underlie the panel 24 and is passed forwardly through a vertical slot 39 formed in the panel and adjacent the left-hand roller 5, whereby one vertical set of key indicia will rest at the left-hand side of the sheet 26 and in exposed position. Thus the vertical series of clefs and key signatures will indicate the key of the musical characters.

By particular reference to Figure 3 it will be understood that turning of the shaft 14 about its axis will be attended by rotation of the upright rollers 5 and the movement of the sheet 37 from one roller to the other. One complete revolution of the shaft 14 is designed to turn the rollers 5 sufficiently far to present a fresh vertical series of key signatures at the left hand side of the sheet 26 in Figure 2. The thread 17 on the shaft 14 is illustrated conventionally in Figures 2 and 3, but it is to be understood that in practice the said thread will be of such pitch that one complete revolution of the shaft will be attended by movement of the nut 27 toward the right or the left in Figure 3 for a purpose hereinafter set forth. It will also be understood that when the said shaft 14 is turned through one complete revolution the single tooth on the gear 19 will cooperate with the gear 21 to turn the shaft 20 and the spur gear 22 sufficiently far to raise the rack 23 and the panel 24 to position the staffs on the sheet 26 relative to the said vertical series of key signatures. It is evident that the members 19 and 21 must be in clutch in order to change the position of the panel and sheet, relative to the staffs. Therefore, the lug 32 to make this change must be traveling in one of the interdental spaces in the bar 31. Further movement of the lug will cause the separation of the members 19 and 21 so that the movement of the belt will not be accompanied by a movement of the panel. Such changes of key as from any key to its flat or sharp as from D to D-flat or from F to F-sharp would be made without a change of the panel. Manifestly the depression of the bar 31 will be attended by rocking of the levers 30, and the movement of the bar 29 toward the left in Figure 3, with the result that against the action of the spring 18, the gear 19 will be moved out of the vertical plane of the gear 21 and consequently out of engagement with said gear 21. In this connection it will be noted that the belt 37 and the panel 24 carrying the sheet 26 will be properly positioned whereupon the mechanism 31, 19 and 21 will be stopped through the depression of the bar 31 by the tooth 32 carried on the nut 27. When the plane of a transposed composition is completed, and it is desired to provide another transposition, the operation described is repeated.

The front section 1 of the casing A is provided with a rectangular opening 40 in which is suitably arranged a transparent sheet of material 41 which is in this instance transparent celluloid, the sheet being of such a size as to completely close the opening 40. This sheet 41 is provided with a plurality of musical staffs arranged transversely of the sheet and in spaced relation to each other as at 42, while the inner vertical edge of the sheet is painted or otherwise treated at spaced intervals to provide the opaque portions 43 and the intervening transparent portions 44, the opaque portions 43 being provided with relatively small rectangular transparent portions 45. It will be seen from this construction that when the front section 1 is swung so as to rest in front of the rear section 2 of the casing, the transparent sheet 41 carried by said section 1, will be caused to overlie the musical sheet 26, the staffs 42 upon the transparent sheet being so arranged as to position the musical characters upon the staffs, as is clearly shown in Figure 1 of the drawings. The opaque and transparent portions 43 and 44, respectively, will cover certain portions of the exposed part of the belt 37 so as to display the key signatures at one end of the staffs 42 upon the transparent sheet. The smaller transparent portions 45 are adapted to expose the names of the keys arranged under each of the staffs on the belt 37.

From the foregoing construction it will be seen that when it is desired to change or transpose the musical characters upon the sheet 26 from one key to another, by actuating the previously described mechanism through the medium of the shaft 14 and handle 16, the musical sheet will be moved upwardly or downwardly so as to cause the musical characters to assume different positions upon the staffs 42, while the belt 37 is simultaneously moved to expose the corresponding key signature. It will thus be seen that the musical characters are easily and quickly transposed from one key to another by a simple manipulation of the handle 16.

If it is desired to transpose the musical characters from the treble to the bass or

vice versa, the rollers 5 are moved vertically or longitudinally upon the stub shafts 4 through the medium of the rod 10, so as to cause the treble signatures to be passed beneath the opaque portions 43, and thus cause the bass signatures to be exposed in the transparent portions 44. Suitable means (not shown) may be employed for locking the rod 10 in this position, whereby the musical characters upon the sheet 26 may be read in the bass.

In Figures 8 and 9, I have shown a modified form of my invention, in which I provide the front section 1^a of the casing with a spring-actuated roller 46, such as is used upon a common shade roller, the surface of the roller being provided at spaced intervals with annular grooves 47, each of which is adapted to receive a cord 48. The cords and grooves are arranged in series of fives to represent the corresponding lines of a musical staff, the inner ends of the cords being secured to the spring-actuated roller, while the opposite extremities are connected together in series of fives by means of a bar 49, the medial portion of the bar 49 being provided with a loop 50 which is adapted to engage a hook 51 suitably mounted upon the section 2^a. In this embodiment of my invention, I have substituted the cords for the lines upon the transparent sheet, and eliminated the transparent sheet and thus permit ready access to the sheet bearing the musical characters, to correct or change the musical characters as the user may see fit. It is to be understood that when the bar 49 is disconnected from hook 51, the spring within the roller 46 will actuate the roller to wind the cords thereupon, the grooves serving to keep the cords in their proper spaced relation. It will thus be seen that the cords may be readily removed from the surface of the musical sheet, and furthermore may be readily drawn into operative position.

It is thought from the foregoing taken in connection with the accompanying drawings that the construction and operation of my device will be apparent to those skilled in the art, without further description, and that minor changes in size, shape, proportion and minor details of construction may be made without departing from the spirit and scope of the appended claims.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. In a music transposing chart, the combination of a rectilinearly-movable panel having a vertical slot adjacent to its left-hand vertical edge, a sheet carried at the front side of said panel and disposed entirely at the right of said slot and bearing the musical characters of a composition, vertical rollers mounted adjacent to the vertical edges of the panel, a belt movable from one roller to the other behind the major portion of the panel and forwardly through the slot of the panel and overlying the left-hand vertical portion thereof; said belt bearing vertical sets or signatures and key indicia, staff-bearing means through which the musical characters of the composition are visible; said staff-bearing means overlying the sheet bearing said characters, means for moving the panel rectilinearly transversely to the lines of the staffs, means for rotating the rollers to move the belt at right angles to the line of movement of the panel, and connections from the means for moving the panel to the means for rotating the rollers, whereby the movement of the panel is controlled relative to the rotation of the rollers.

2. In a music transposing device, the combination of means for moving rectilinearly a sheet bearing the musical characters of a composition, means movable rectilinearly behind the first-named means and visible at the left hand side thereof; the second-named means bearing vertical sets of signatures and key indicia, staff-bearing means through which the musical characters of the composition are visible, said staff-bearing means overlying the first and second means, and means for moving the first and second means at right angles to each other, and the second means transversely to the lines of the staffs, the movement of the second means being controlled by the movement of the first means.

In testimony whereof I affix my signature.

WALDEMAR M. MELING.