

Oct. 6, 1942.

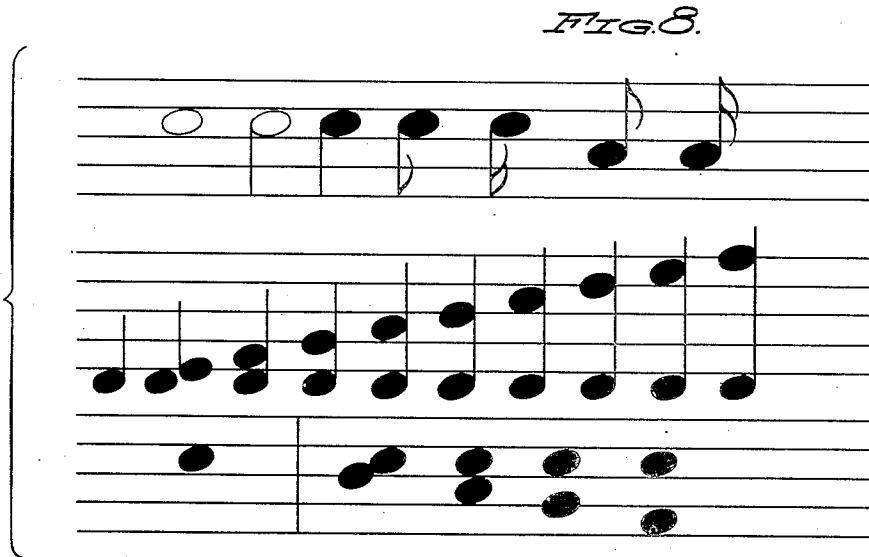
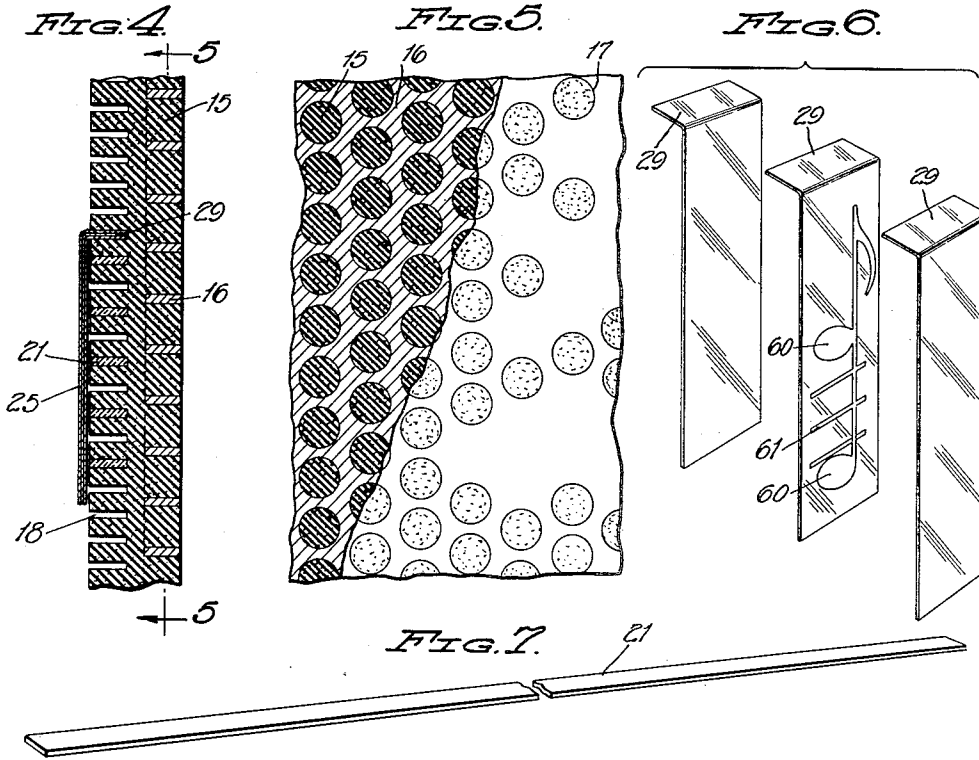
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2,298,081

APPARATUS FOR ARRANGING MUSICAL COMPOSITIONS

Filed Sept. 17, 1940

3 Sheets-Sheet 2



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WITNESS:

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3 Sheets-Sheet 3

FIG. 9.

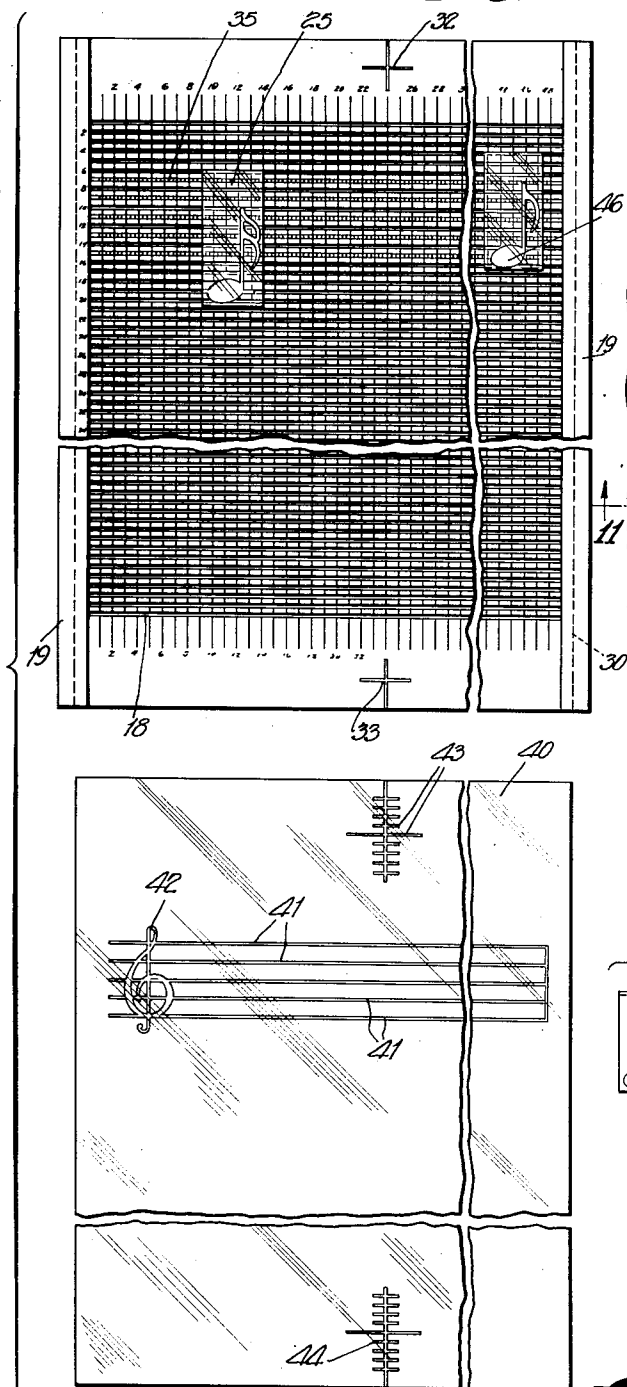


FIG. 10.

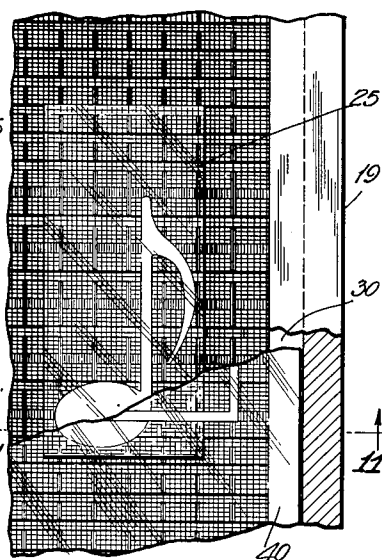


FIG. 11.

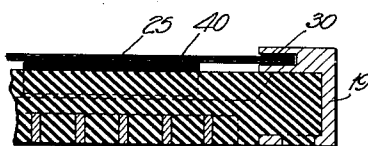


FIG. 12.

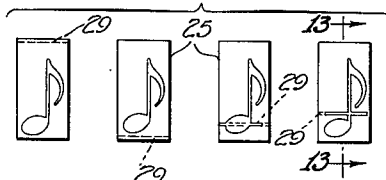
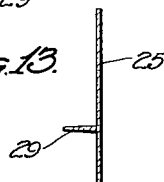


FIG. 13.



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APPARATUS FOR ARRANGING MUSICAL COMPOSITIONS

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mesne assignments, to Cherio Music Publishers,
Inc., New York, N. Y., a corporation

Application September 17, 1940, Serial No. 357,087

2 Claims. (Cl. 84-471)

This invention relates to new and useful improvements in the art of printing, and more particularly it pertains to a new and novel apparatus and method for preparing or arranging musical compositions for the production of printing plates from which numerous copies may be made.

It is the primary object of the invention to provide an apparatus and method whereby separate elements may be assembled in desired relation and photographed or otherwise reproduced to provide printing plates from which impressions in the desired number may be made.

A feature of the invention resides in a novel form of support upon which a plurality of note or character bearing elements may be assembled in any desired relation to form a musical composition.

A further feature of the invention resides in a special construction of support, together with means for use in connection therewith, whereby a musical composition set-up in one key may be transposed into another key without necessitating shifting or rearrangement of the note or character bearing elements relative to the support.

A still further feature of the invention resides in the use of a novel form of note or character element together with novel means for retaining the same in position upon a suitable support or base.

A still further feature of the invention resides in a novel construction whereby the character bearing elements, particularly the note bearing character elements may be positioned upon the support with its stem extending either up or down as desired.

Other features of the invention relate to certain novel and improved constructions, arrangements and combinations of parts hereinafter described and particularly pointed out in the claims, the advantages of which will be readily understood and appreciated by those skilled in the art.

The invention will be clearly understood from the accompanying drawings illustrating the invention in its preferred forms and the following detailed description of the constructions therein shown.

In the drawings,

Figure 1 is a plan view illustrating a device constructed in accordance with one form of the present invention illustrating two musical staves and character bearing elements associated with each,

Figure 2 is a fragmentary plan view thereof on an enlarged scale,

Figure 3 is a transverse sectional view of the support, the view being taken substantially on the line 3-3 of Figure 2,

Figure 4 is a view similar to Figure 3, taken substantially on the line 4-4 of Figure 2,

Figure 5 is a detail sectional view taken substantially on the line 5-5 of Figure 4,

Figure 6 is a distended perspective view illustrating the construction of one of the character bearing elements,

Figure 7 is a perspective view partly broken away of one of the staff forming elements,

Figure 8 is a schematic view illustrating a few of the different types of notes employed,

Figure 9 is a plan view illustrating a slightly modified construction of support,

Figure 10 is a detail fragmentary view partly broken away illustrating that form of support shown in Figure 9, the view being taken on an enlarged scale,

Figure 11 is a detail sectional view taken substantially on the line 11-11 of Figure 10,

Figure 12 is a view illustrating in plan, a plurality of note or character bearing elements of a slightly modified form, and

Figure 13 is a sectional view on an enlarged scale taken substantially on the line 13-13 of Figure 12.

Referring to the drawings by reference character, and particularly to Figures 1 through 8, the support is designated generally by the reference character A.

The support illustrated is of rectangular form and is constructed from suitable soft or pliable material of which rubber is one very good example.

While for certain reasons which will hereinafter appear, it is highly desirable to maintain a certain degree of flexibility or pliability upon the front or working face of the support, it is also desirable to provide a certain rigidity to the support in order that it may be transported from place to place without undue flexing or distortion thereof. These features are obtained by employing a material which is possessed of the desired flexibility and pliability in the form of a relatively thick sheet or body and reinforcing the rear portion or zone thereof, leaving the front or working face thereof in its original flexible or pliable state.

While the reinforcing of the support may be accomplished in various ways, I prefer to employ a perforated plate of rigid material of which metal, wood or fiber are very good examples.

In the accompanying drawings, the body por-

tion of the support is designated 15, and is shown as formed from rubber. The reinforcing means is designated 16 and it consists of a plate of rigid material formed with a plurality of openings 17.

The main body portion may be formed by molding and during the molding process, the reinforcing plate may be incorporated therein in any desired manner and since, as best illustrated in Figure 4 of the drawings, the reinforcing element 16 is relatively thinner than the body portion 15, preferably less than half the thickness thereof, and being located at the rear or bottom face thereof, the forward or working face or portion retains its pliability to the desired degree. The body of the support is preferably enclosed in a suitable frame 18.

The working face is formed with a plurality of transversely extending channels 18 arranged in equidistantly spaced relation, and as illustrated in Figure 3, they extend well into the body portion 15 of the support.

Extending across the support in right angular relation to the channels 18, there are position indicating lines 20 which are also equidistantly spaced.

As indicated in the drawings, the working face of the support is black in color and this color is employed so that when the device is photographed, the support will make no impression upon the sensitive element employed. The position indicating lines 20 heretofore mentioned are of a color which contrasts with respect to the working surface of the support in order that they may be visible thereon and yet which will not photograph and for this purpose, the color red, is preferably employed.

The channels 18 and the position indicating lines may be numbered as shown thus rendering the location on any particular portion of the support more readily accomplished.

In Figure 7, I have illustrated one of the elements which are adapted for reception in the channels to form the bars of the musical staff. This element is designated by the reference numeral 21 and consists of a relatively long strip of suitable material of a cross-sectional size and shape to be received in the channels 18 and retained therein against accidental displacement by frictional contact or engagement with the side walls thereof. The bar forming elements 21 are white in color and this color is employed so that when photographed, the bars will be impressed upon the sensitized element.

In Figure 1 of the drawings, I have illustrated ten of these bar forming elements arranged in two groups of five each to form two musical staves, the bars in each staff being placed in alternate channels in this particular set-up.

The reference character 25 designates character bearing elements and, as illustrated, each consists of a transparent body portion with the character, which is designated 26 appearing in white thereon. These character bearing elements may be formed of any suitable transparent material with the character appearing thereon in any color which will photograph in contrast to the white background produced in the photographic step of the process by the black surface of the support. In the present embodiment of the invention, I have illustrated the character bearing elements as bearing note and clef characters, it is understood that they are intended to bear all of the characters employed in the composition and arrangement of musical scores.

The character bearing elements are each pro-

vided with means for engagement in the channels in order properly to position the characters carried thereby with respect to the bars and spaces of the musical staff formed by the elements 21. This means preferably consists of a flange or the like 29, which may project from one end of the character bearing element as illustrated in Figures 4 and 6 or from a point intermediate of the ends as illustrated in Figure 13.

I will now describe the manner in which the invention is employed in the preparation of printing plates from which printed sheets of music may be reproduced.

A musical composition in the form of manuscript copy or other form is reproduced in uniform spacing upon the support A. This is accomplished by first taking five of the elements 21 and placing them within the channels 18 in equidistantly spaced relation to form the bars and spaces of a musical staff. In so doing, the bars may be placed in adjacent channels, alternating channels or in any equi-distantly spaced relation depending upon the size of finished copy desired. This having been done, a character bearing element, bearing the clef designation is positioned in superimposed relation to the bars with the flange of the character bearing element received in the proper channel properly to position the clef bearing element relative to the bars. After this has been done character bearing elements in the form of notes are then superimposed upon the bars and their flanges are engaged in the proper channels properly to position the notes with respect to the bars and spaces of the musical staff. In placing these note bearing elements upon the support and in order to maintain proper spacing of the notes, the note bearing elements are positioned with one of their edges, preferably their left edge, in parallel relation with and closely adjacent to the proper indicating lines 20 to maintain either equi-distantly spaced relation between the note bearing elements or other desired spaced relation between the note bearing elements in order to produce a uniform copy.

The foregoing method is carried out until such time as the musical composition is completed upon the support or supports as the case may be and when completed, the entire support, together with the character bearing elements, is photographed upon a sensitive plate.

In the photographing process the surface of the support being black reproduces white. The bars forming the bars and spaces of the musical staff being white, photograph black. The character bearing elements being of a transparent material do not in themselves photograph but the characters carried thereby being in white photograph black as do also the bars which form the spaces and bars of the musical staff since they are readily visible through the transparent portion of the note bearing elements, except of course, where they are hidden by the characters themselves.

By this construction and arrangement it will be obvious that after the photographic plate has been prepared in the usual manner, impressions taken therefrom will produce the musical staff together with the several musical characters in black or another colored ink upon a white field or background.

In some instances it may be necessary to position notes above or below the outer bars and spaces of the musical staff and in such instances I employ a character bearing element of the type illustrated in Figure 6 which characters consist

of notes 60 with intervening bars 61. While in this instance two notes and three bars are shown such characters may be made up with any combination of notes and bars. When such a note character is employed, the additional bars above or below the staff will be supplied by the character itself rather than by the insertion of additional elements such as 21 in the channels in the surface of the support.

I will now describe the character bearing elements.

Each character bearing element preferably comprises three separate sections of transparent material of rectangular shape or form. Each section of material is preferably provided upon its end with the flange 29 heretofore mentioned, although in some instances it may be desirable to omit the flanges from all but one of the pieces of material. As heretofore stated the material employed is of a transparent nature and the three sections are placed together in superimposed relation and secured in said superimposed relation by any suitable means. In actual practice I have found it convenient to use certain materials for which there are solvents which act as a cement and when the sections are secured together by such material, the transparency of the character bearing elements is in no way impaired. The character is applied to the intermediate piece in any desired manner. I have found in actual practice that one convenient way of doing this is by painting directly upon the intermediate section, the desired character preferably upon what is the upper face thereof when the character bearing element is placed in operative position upon the support.

The character being painted, printed or otherwise formed on the upper or front face of the intermediate section, is thus protected against defacement by that piece which covers it when the three pieces are assembled as described, to form a laminated structure.

In Figures 9 through 11, I have illustrated a modified form of the invention by which transposition of a musical composition from one pitch or key to another pitch or key without disturbing in any manner the arrangement of the character bearing elements with relation to the support, may be accomplished.

The support, in this modified form of the invention, is identical in every respect with the support heretofore described, except that the frame thereof is provided with guide channels 30, these guide channels being arranged one at each side of the frame. The side members of the frame are slightly thicker in order that an element movable through the guide channels will be spaced with respect to the working surface of the support. In this modified form, the frame is also provided at top and bottom with position indicating crossed lines 32 and 33 respectively, the purpose of which will be hereinafter described. The elements 21 employed in the heretofore described form of the invention are replaced by elements 35 the exposed surfaces of which are red or other non-photographic color. They are, however, of a color which contrasts with the working surface of the support and are thus visible for the proper positioning of the character bearing elements with respect to the bars and spaces of the musical staff formed by said elements 35.

The reference numeral 40 designates a character bearing element in the form of a rectangular sheet of transparent material and carried

thereon in the same manner as the characters of the heretofore described character bearing elements, there is a character in the form of five bars 41 which form the bars and spaces of a musical staff and a clef character 42. This arrangement is of a size to fit and slide freely within the guide channels 30 and it is also provided at top and bottom with position indicating crossed lines 43 and 44 respectively so positioned upon the sheet as to register with the position indicating lines 32 and 33 heretofore mentioned when the sheet is in proper position relative to the support.

In using this form of the invention the musical composition is set up in one key upon the support, employing the musical staff provided by the elements 35. Now, in order to change the pitch or key of the musical composition it is only necessary to insert the sheet 40 in the guide channels 30 and position the staff character carried thereby to proper position with respect to the set up composition, in order to change it to the desired pitch or key. For example, in Figure 9, the note designated 46 is shown upon the musical bar of the staff formed by the elements 35. To transpose this note to a higher or lower pitch position upon the staff, the sheet 40 is moved through the guide channels 30 until the musical staff thereon registers with the musical staff formed by the elements 35. If now the sheet 40 be moved upwardly in the drawings one space beyond the point designated, the note 46 will then fall below the bottom line of the staff character upon the sheet 40 and the pitch of the note will be lowered. On the other hand with the staff character on the sheet 40 in registration with the staff formed by the elements 35, and the sheet 40 be moved downwardly in the drawings one or more spaces, the position of the note 46 will be raised with respect to the staff character on the sheet 40 and the pitch of the note thereby raised.

Proper alignment position of the sheet 40 and its staff character relative to the note character bearing elements upon the support is determined by bringing the desired horizontal lines of the position indicating lines 43 and 44 respectively into registration with the horizontal lines for the position indicating lines 32 and 33 on the support, and proper lateral position of the sheet 40 is determined by bringing the vertical lines of the position indicating lines 43 and 44 respectively into registration with the vertical lines of the position indicating lines 32 and 33 upon the support, it being understood that the sheet 40 has a slight lateral movement in the guide channels 30 in order that this last described operation may be carried out.

In Figures 12 and 13 I have illustrated modified forms of note character elements. In one form the flange 29 is shown as at the upper end of the element with the stem of the note in an upright position. Also in said figure the flange 29 is shown as projecting from the bottom edge of the element when the stem of the note is in an upright position. In still another form there is shown a note bearing character in which the flange 29 is positioned slightly above the lower edge, and in the fourth form the flange 29 is illustrated at a still further point from the lower edge of the element and in each of these instances the stem of the note is shown in an upright position.

From the foregoing it will be apparent that the present invention provides a new and improved

apparatus and method for reproducing printed music and it has been found in actual practice, that the printing of music with an apparatus and by the method as herein described, may be accomplished with greater facility than is possible with any methods now in use with which I am familiar. Furthermore, the present invention provides for greater latitudes in the selection of musical characters and their use and still further provides apparatus which may be used over and over again without deterioration or defacement.

While the invention has been illustrated in its preferred forms, it is to be understood that it is not to be limited to the structures herein illustrated and that it may be practiced in various other forms and that this is particularly true of the character bearing elements, since there has been no attempt to show all types of all musical characters employed, in the present illustration of the invention.

Having thus described the invention what is claimed is:

1. Apparatus of the type described comprising in combination, a base member, a plurality of spaced grooves extending transversely of the base member, non-photographic position indicating

means extending across the surface of the base member in angular relation to said grooves, bars for removable attachment in said grooves in spaced relation to form the bars and spaces of the musical staff, transparent character bearing elements adapted to be positioned upon the base member in definite relation with the said non-photographic position indicating means and said bars, and means for retaining said transparent character bearing elements in position upon said base member.

2. Apparatus of the type described comprising in combination, a base member, a plurality of bars, means for removably securing said bars in spaced parallel relation upon the surface of the base member to form the bars and spaces of a musical staff, non-photographic position indicating means extending across the surface of the base member in angular relation to the bars forming the musical staff, transparent character bearing elements adapted to be positioned upon the base member in definite relation with the said non-photographic position indicating means, and means for retaining said transparent character bearing elements in position upon the base member.

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