

April 3, 1956

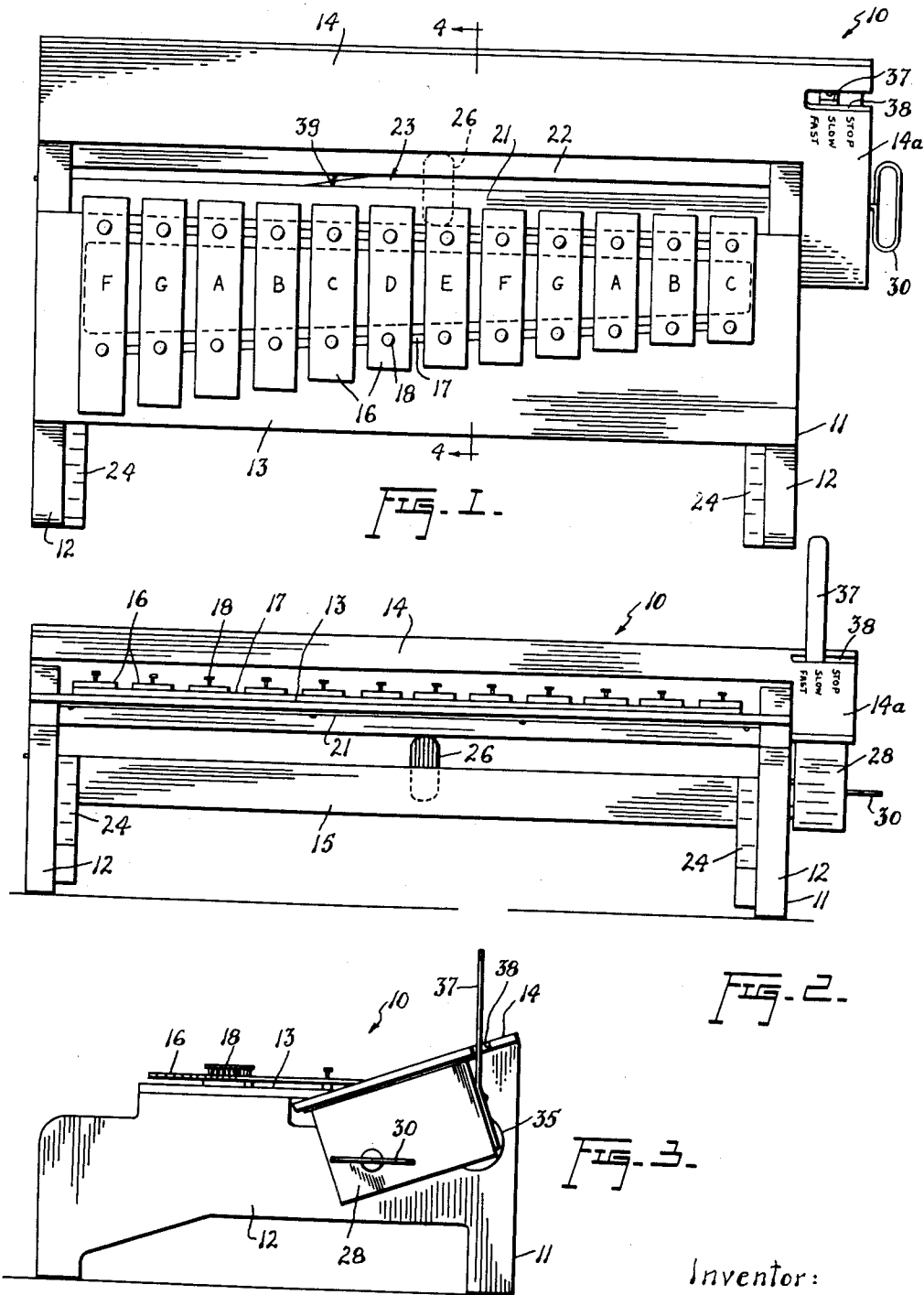
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2,740,314

MUSICAL INSTRUMENT WITH NOTE INDICATING MEANS

Filed Feb. 23, 1955

2 Sheets-Sheet 1



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MUSICAL INSTRUMENT WITH NOTE INDICATING MEANS

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2 Sheets-Sheet 2

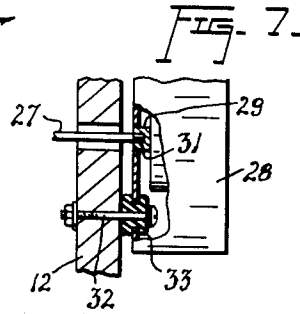
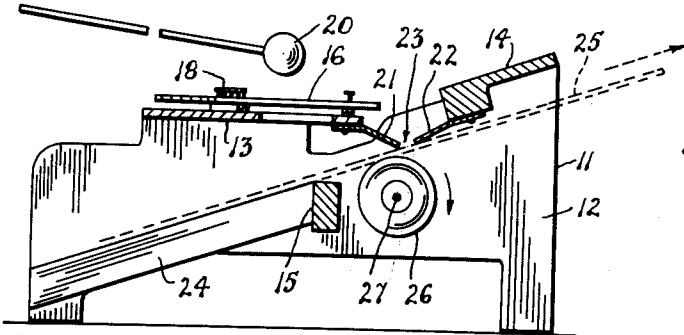


FIG. 4.

FIG. 7.

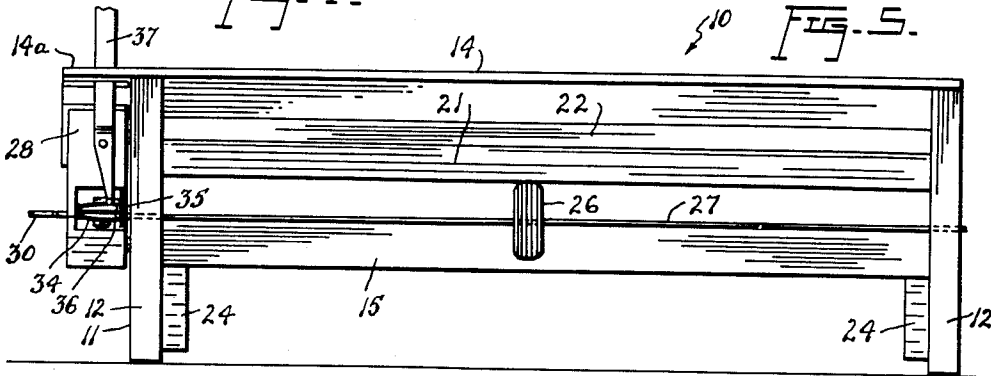


FIG. 5.

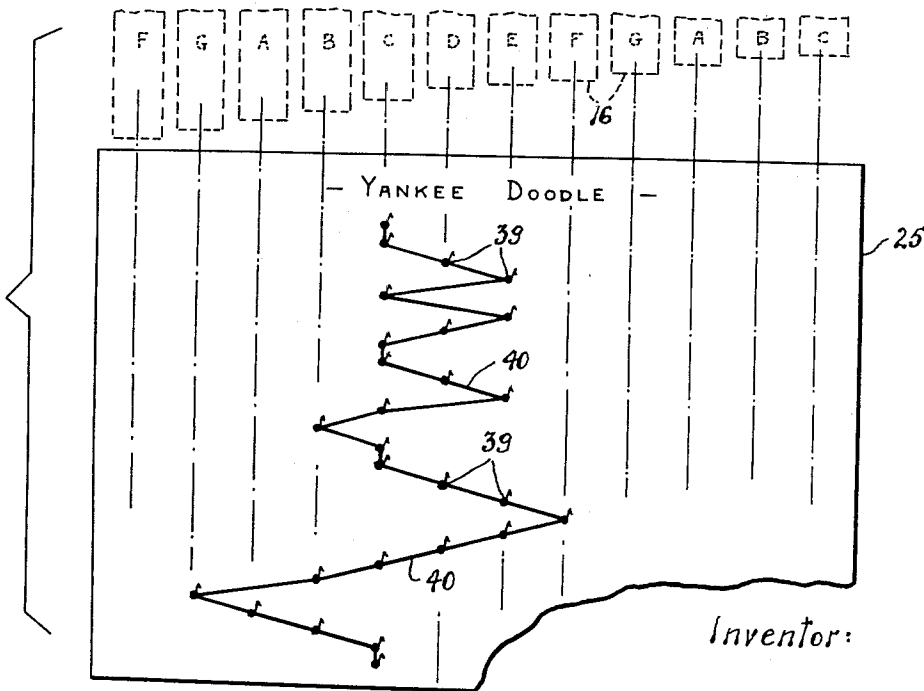


FIG. 6.

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1

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MUSICAL INSTRUMENT WITH NOTE INDICATING MEANS

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4 Claims. (Cl. 84-477)

This invention relates to new and useful improvements and structural refinements in musical instruments, and in particular the invention concerns itself with toy-type instruments such as small pianos or xylophones wherein musical tones are produced by manual actuation of keys or bars.

As is well known, these keys or bars must be actuated in a predetermined succession in order to play a given tune, and various means have been devised in the past for indicating to a relatively inexperienced player the succession in which the keys or bars are to be actuated for that purpose. Some of these means involve the numbering or coloring of notes on a sheet to correspond with numbering or coloring of the respective keys or bars of the instrument. While theoretically such an arrangement appears quite satisfactory, in practice it leaves much to be desired since the mental coordination required, particularly in the instance of a small child, does not permit a tune to be played with reasonable continuity and speed. To eliminate this disadvantage, music or note indicators have been devised which utilize a moving strip or sheet with markings thereon corresponding to the location of the keys or bars of the instrument, so that as the strip or sheet is moved, the markings will indicate in a successive manner the keys or bars which are to be actuated.

Most devices of the last mentioned type are in the form of individual units adapted for use as an attachment or accessory to some particular type of musical instrument, and a difficulty often arises in attempting to properly fit the attachment to the instrument, or vice versa.

The present invention, therefore, has for its principal object to provide a musical instrument wherein the note indicating means are embodied into a fully self-contained unit, capable of being played with efficiency by even relatively inexperienced persons, such as small children.

An important feature of the invention resides in the structural arrangement of the musical instrument embodying the note indicating means therein, the same as a unit being of an easily portable nature and particularly well adapted for use as a highly educational and entertaining toy.

Some of the advantages of the invention reside in its simplicity of construction, in its simple and efficient operation, in its durability and in its adaptability to economical manufacture.

With the foregoing more important objects and features in view and such other objects and features as may become apparent as this specification proceeds, the invention resides in the arrangement of parts and details of construction substantially as shown in the accompanying drawings, wherein like parts are designated by like reference numerals and wherein:

Figure 1 is a top plan view of the invention;

Figure 2 is a front elevational view thereof;

Figure 3 is an end view of the same;

Figure 4 is a sectional view, taken substantially in the plane of the line 4-4 in Figure 1;

2

Figure 5 is a rear elevational view;

Figure 6 is a plan view of the note indicating sheet and showing diagrammatically its relationship to the tone producing bars of the instrument; and

Figure 7 is a fragmentary sectional view illustrating the mounting of the motor and drive connection used in the invention.

As already stated, the instant invention may be embodied in various types of instruments such as pianos, xylophones, and the like, and for illustrative purposes only, an embodiment of the invention in a xylophone has been shown.

With reference now to the accompanying drawings in detail, the instrument is designated generally by the numeral 10 and embodies in its construction a suitable frame 11, including a pair of side members 12, a front top member 13, a rear top member 14 and a cross member 15 extending between the side members 12, as shown. The front top member 13 provides support for a transversely extending row of tone producing elements or bars 16 which are mounted in the conventional manner on cushioning strips 17 by suitable nails or pins 18. If desired, the portion of the top member 13 under the bars 16 may be recessed, as indicated at 19 for purposes of reduction of weight, and, of course, the bars 16 are manually actuated by a suitable mallet 20 (see Figure 4) to produce musical tones.

The top members 13, 14 are spaced apart and a transversely extending strip 21 of resilient material is suitably secured to the underside of the rear edge portion of the member 13. Similarly, a strip 22 is secured to the underside of the thickened front edge portion of the member 14, the two strips 21, 22 having spaced parallel adjacent edges defining a transversely elongated sight opening 23 therebetween. As is best shown in Figures 1 and 4, this opening is substantially parallel to the row of tone producing bars 16 and is disposed adjacent the rear ends of the bars.

A pair of rearwardly inclined guide rails 24 are provided on the opposing inner surfaces of the side members 12 and extend to the cross member 15. A note indicating sheet 25 of relatively stiff material is slidable along the guide rails 24 in a direction perpendicular to the sight opening 23 and is visible through this opening. The sheet 25 has printed or otherwise marked indicia thereon, hereinafter to be described.

Means are provided for continuously driving or sliding the sheet 25 along the guide rails 24, these means comprising a drive roller 26 secured to a shaft 27 which is rotatably journaled in the side members 12, substantially under the sight opening 23. The roller 26 frictionally engages the underside of the sheet 25 and is disposed midway between the side members 12, so that the sheet 25 is evenly propelled. If desired, a more positive drive may be used by providing the roller with a toothed periphery to engage a row of indentations, or the like, on the underside of the sheet.

Power driven means are provided for rotating the roller 26, these comprising a motor 28, preferably a clockwork motor, mounted on the outside of one of the side members 12 under a projecting portion 14a of the top member 14. The main spring shaft 29 of this motor is provided at its outer end with a winding key 30, while its inner end is formed with a polygonal bore 31 to receive a polygonal end portion of the shaft 27 extending through the adjacent side member 12, as is best shown in Figure 7. The motor 28 is attached to the adjacent side member 12 by a plurality of bolts 32 equipped with insulating grommets 33, so that vibration from the motor is not transmitted to the side member which would act as a sounding board therefor.

The motor 28 includes a speed governor 34 having a

flywheel 35 engaged by a friction pad 36 secured to a control lever 37, whereby the motor may be started and stopped and its speed regulated in a conventional manner, thus correspondingly starting, stopping and controlling the speed of travel of the sheet 25. The lever 37 projects upwardly through a recess 38 in the portion 14a of the top member 14, so that it may be conveniently manipulated.

The note indicating sheet 25 is printed or otherwise provided with a set of note markings 39 corresponding to a musical tune which is to be played. These markings are arranged in transversely spaced rows corresponding to the positions of the respective tone producing bars 16 and the markings are also spaced vertically on the sheet, so that when the sheet travels along the guide rails 24, the note markings 39 are individually and successively visible through the sight opening 23, as illustrated in Figure 1. Thus, when the device is in use, the player merely has to watch the note markings as they progressively appear in the sight opening 23 and strike the appropriate bars 16 at which such markings appear, in order to easily and fluently play any given tune to which the markings on the sheet 25 are set.

Since the sheet 25 is moving continuously under the sight opening and since the sight opening may be of substantial length, the player may have some difficulty in spreading his vision over the span of the entire sight opening in anticipation of where the next note marking may appear. To eliminate this difficulty the note markings are provided with the usual, short vertical "tails" which appear in the sight opening before the actual note marking and thus indicate to the player where the next note marking is to be expected. Moreover, the sheet 25 is printed or otherwise provided with indicator lines 40 which extend between and connect together successive note markings, so that as soon as any one note marking is "played," the indicator line therefrom leads the player's vision in the direction of the next note marking and very efficient continuity in reading the note markings is thereby attained.

If desired, the note markings and the respective bars 16 may be correspondingly colored in accordance with conventional practice for purposes of further identification.

While in the foregoing there has been described and shown the preferred embodiment of the invention, various modifications may become apparent to those skilled in the art to which the invention relates. Accordingly, it

is not desired to limit the invention to this disclosure, and various modifications may be resorted to, such as may lie within the spirit and scope of the appended claims.

What is claimed as new is:

1. A musical instrument with note indicating means, comprising in combination, a frame including a pair of side members and mutually spaced front and rear top members thereon, a transversely extending row of manually actuated tone producing elements provided on the front top member, a pair of transversely extending guide strips secured to said front and rear top members and projecting in the space therebetween, said guide strips having spaced parallel adjacent edges defining a transversely elongated sight opening disposed adjacent said row of tone producing elements, a pair of guide rails provided on the inside of said side members, an indicator sheet slidable on said guide rails at right angles to and under said sight opening, note markings provided on said sheet in transverse alignment with the respective tone producing elements, said note markings being individually and successively visible through said sight opening during sliding of said sheet, a rotatable shaft journaled in said side members substantially under said sight opening, a drive roller secured to said shaft midway between said side members, and a motor mounted on said frame and operatively connected to said shaft, said drive roller being operatively engageable with the underside of said sheet for sliding the latter, whereby said note markings may be individually and successively displayed in said sight opening to indicate to a player which tone producing element is to be actuated.
2. The structure as set forth in claim 1, wherein at least one of said guide strips is resilient and engageable with said sheet for urging the latter in driving engagement with said roller.
3. The structure as set forth in claim 1 together with sight direction indicating lines provided on said sheet and connecting together successive note markings.
4. The structure as set forth in claim 1 wherein said motor includes a speed control.

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