United States Patent [19]

Del Castillo

[11] **3,743,758**

[45] **July 3, 1973**

[54] **OPTICAL METRONOME**

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[22] Filed: **Aug. 12, 1971**

[21] Appl. No.: **171,249**

[52] **U.S. Cl.** **84/484**

[51] **Int. Cl.** **G10b 15/00**

[58] **Field of Search** 84/484, 483, 470, 84/477, 478, 486, 487; 353/47; 40/100, 101

[56] **References Cited**

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[57] **ABSTRACT**

An optical metronome using a strip with musical staff thereon folded in zig-zag form moved past a lamp in accordance with the speed of the musical tempo. The notes therefor are viewed through a channel window as the strip moves from one triangularly shaped depository to another.

4 Claims, 3 Drawing Figures

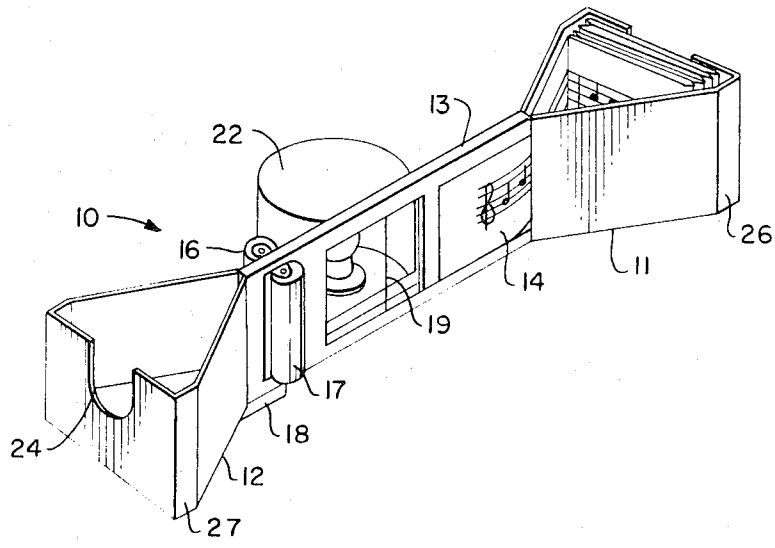


FIG. 1.

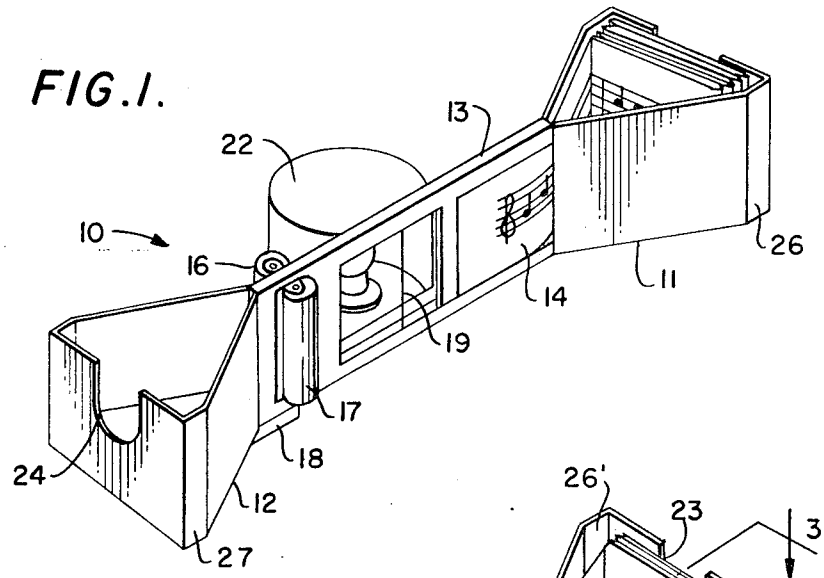


FIG. 2.

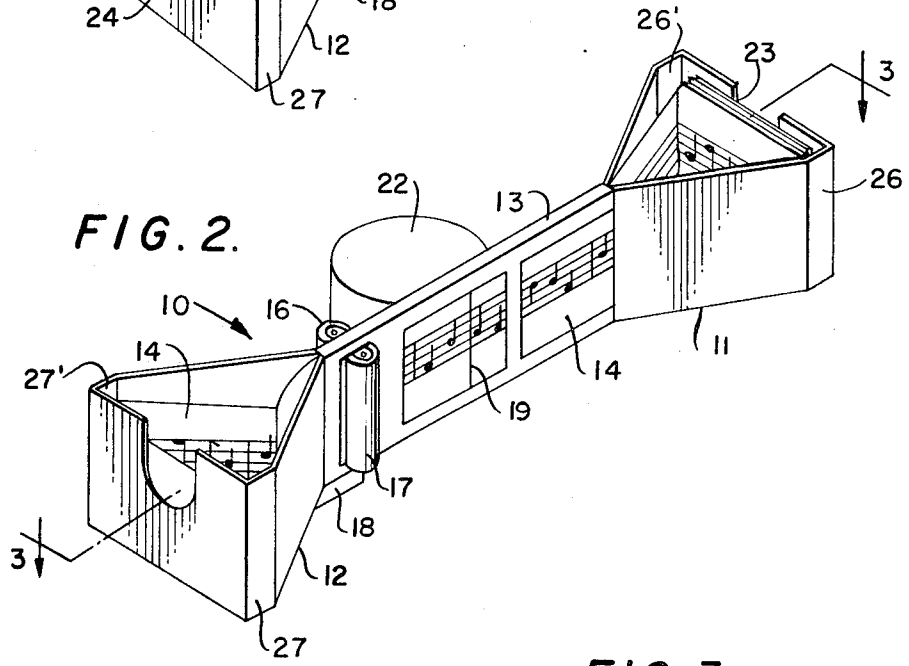
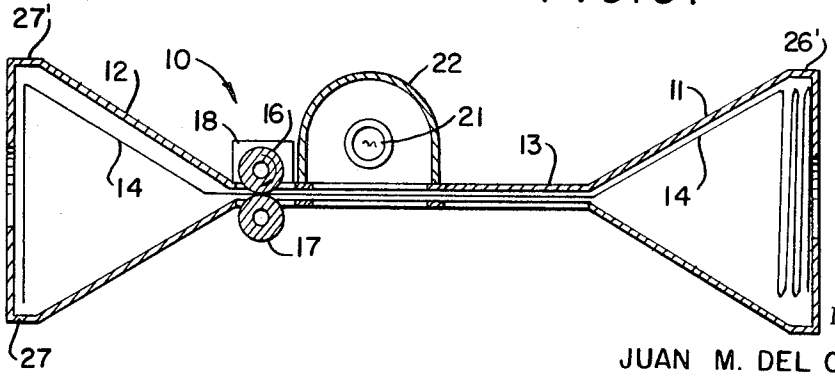


FIG. 3.



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OPTICAL METRONOME

BACKGROUND OF THE INVENTION

The present invention deals with apparatus to allow a pupil of the piano or other musical instrument to play the instrument with proper timed spacing between notes which are viewed as each note is to be played.

This function has been performed by metronomes which in the past have indicated by sound a timing beat or by optical means passed from roller to roller.

The present invention utilizes optical means with a simple device which additionally allows storing of the strips of musical selections in flattened condition in files in a manner unlike the rolls of present devices.

SUMMARY OF THE INVENTION

An object of the present invention is to provide an optical metronome of very simple design.

A further object is to utilize musical score printed on a zig-zag strip to facilite storage of the strip in flattened condition in files.

A still further object of the present invention is to have the printed strip with musical score thereon ready for reuse without the necessity of refolding or rewinding between uses.

Basically the present device is an optical metronome having depositories at opposite ends of a channel with at least one window in the channel and motor driven rollers to move a zig-zag folded strip past the window for observation of the notes on a musical staff on said strip.

BRIEF DESCRIPTION OF THE DRAWING

The above, as well as further objects and advantages which are inherent in the invention, will become apparent from the following description, reference being had to the accompanying drawings wherein:

FIG. 1 is a perspective view of the present invention with the strip with a musical score thereon being started through the device;

FIG. 2 is a similar perspective view of the device with the strip at an intermediate position in the device; and

FIG. 3 is a top plan sectional view of the device of the present invention along line 3—3 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the figures there is shown an optical metronome **10** having depositories **11** and **12** connected to each other by a channel **13**. A strip **14** of paper or some similar foldable material is passed from one depository to the other, in the case shown, from depository **11** to depository **12**.

The commencement of the feeding of the strip **14** from depository **11**, which is done by manual means, is shown in FIG. **1**. The strip **14** is fed to roller **16–17** which then continues the movement of strip **14** through channel **13** from depository **11** to depository **12** at a rate in accordance with the tempo of the music and at the speed determined by motor **18** driving roller **16** which speed is related to the spacing between notes printed or otherwise marked on the musical staff on strip **14**.

Channel **13** has openings therein, the first of which is shown closest to depository **11** and is to aid in starting the strip **14** therethrough, which opening may be either on only one wall of channel **13** as shown or on

both walls. Another opening is centered on channel **13** and has a vertical hairline **19** beneath which the note to be played passes at the time it is to be played by the observer of the optical metronome **10**. To facilitate the reading of the notes the center opening on the walls of the channel **13** may be made on both walls of the channel and a lamp **21** may be mounted in housing **22** which housing is mounted on the back wall of channel **13**. In this case which is illustrated in the figures the translucent quality of strip **14** if such is of a thin paper or similar material, will aid in the reading of the notes on the musical staff.

The rollers **16** and **17** are mounted on channel **13** so as to extend into channel **13** and contact strip **14** on its back and front faces respectively with roller **16** driven by motor **18** and roller **17** acting in the capacity of an idler roller. The motor **18** may have its speed controlled by rheostat, gears, or other means so as to set the required speed of feedthrough of strip **14** in relation to the tempo of the music being played and marked on the strip **14**.

Depositories **11** and **12** are somewhat triangular in shape with their side walls approaching an apex of the triangle at each end of channel **13** in order to facilitate both the feeding of strip **14** to channel **13** from depository **11** and the receiving of strip **14** into depository **12** from channel **13**. Grooves **23** and **24** in the side walls forming the bases of the triangular forms of depositories **11** and **12** facilitate placing strip **14** therein or its removal. A bottom of course, holds the strip **14** in the depositories.

Although as stated above the depositories **11** and **12** have a somewhat triangular shape it should be noted that parallel wall portions **26—26'** and **27—27'** are shown so that strip **14** which is folded in zig-zag fashion may be held in each of the depositories **11** and **12**. The parallel wall portions **26—26'** and **27—27'** should be long enough to accommodate the thickness when folded of the longest strip **14** that it is expected to use with the optical metronome **10**. In use, the strip **14** placed in depository **11** in folded zig-zag fashion will be folded in this same manner when removed from depository **12** after use, ready to be used over again without refolding.

It will be obvious to those skilled in the art that various changes may be made without departing from the scope of the invention such as variations in the means to move the strip through the channel. Therefore the invention is not to be considered limited to what is shown in the drawings and described in the specification.

What is claimed is:

1. An optical metronome comprising

a zig-zag folded strip having musical notes deposited thereon,

first and second depositories to hold and receive said strip,

a channel connecting between said first and second depositories,

means to move said strip through said channel in relation to the tempo of the musical notes depicted thereon,

means to aid in viewing the notes on said strip,

said depositories having a substantially triangular shape with side walls converging toward openings in said channel,

said side walls positioned for guiding said strip into and out of said channel and having lengths measured from said openings in said channel substantially the width of a folded portion of said strip.

2. The optical metronome of claim **1**, further characterized by

said means to move said strip through said channel including

a pair of rollers mounted on said channel to receive said strip therebetween,

motor means to rotate one of said rollers at a speed related to the tempo of the music depicted on said strip,

the other of said roller acting as an idler.

3. The optical metronome of claim **1**, further characterized by

said means to aid in viewing the notes on said strip including

a window in said channel extending therethrough, and

lighting means mounted at said window at the side opposite from which the notes on said strip are viewed, to pass light through said strip.

4. The optical metronome of claim **1**, further characterized by

each of said depositories having parallel wall portions extending from the outer portions of said converging side walls having a length at least the thickness of said strip in zig-zag folded condition,

said parallel wall portions connected by a wall at their opposite ends from their attachment to said converging side walls.

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