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TEMPO INDICATOR FOR MECHANICAL MUSICAL INSTRUMENTS.

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982,786.

Patented Jan. 31, 1911

FIG. 1

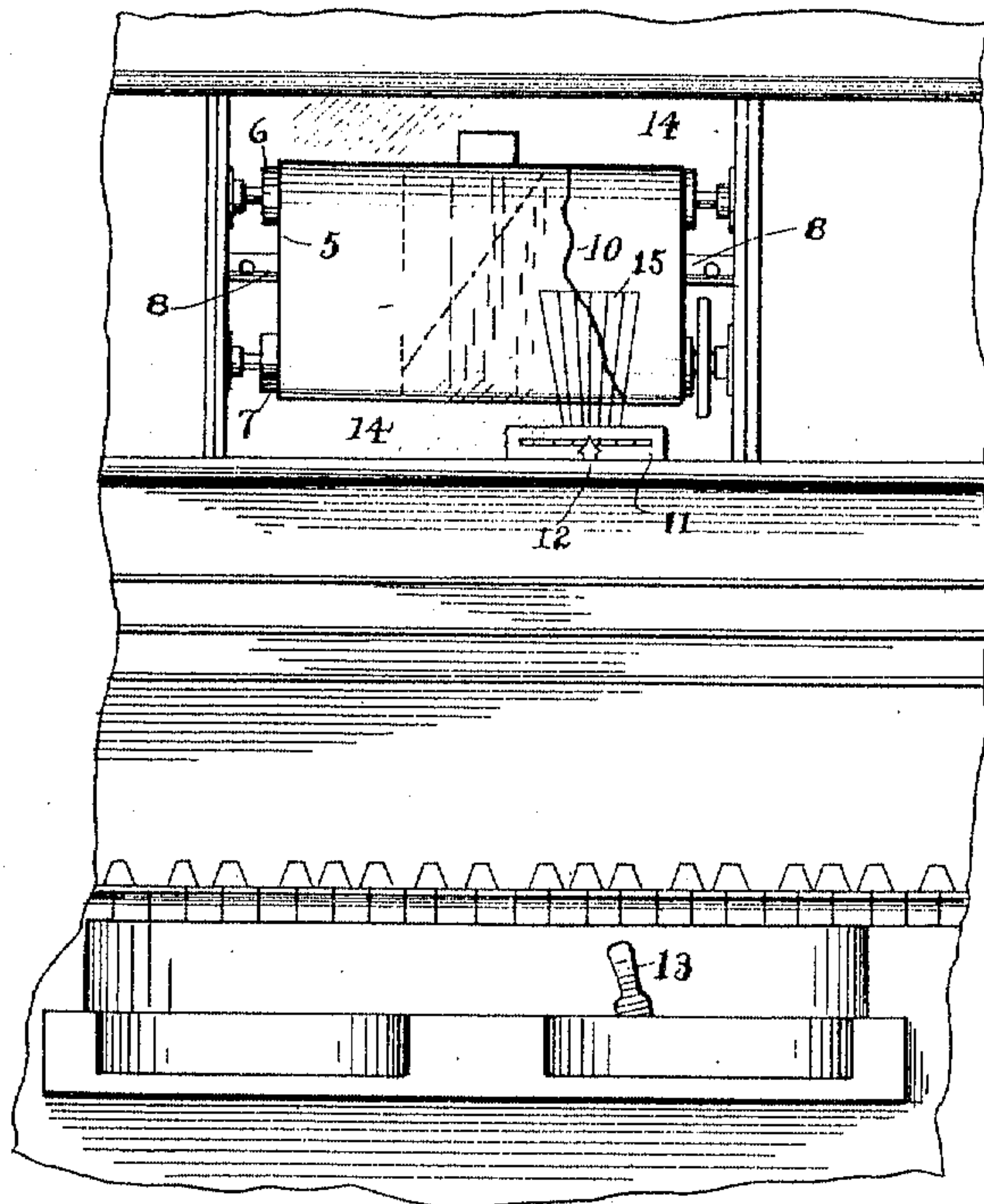


FIG. 2

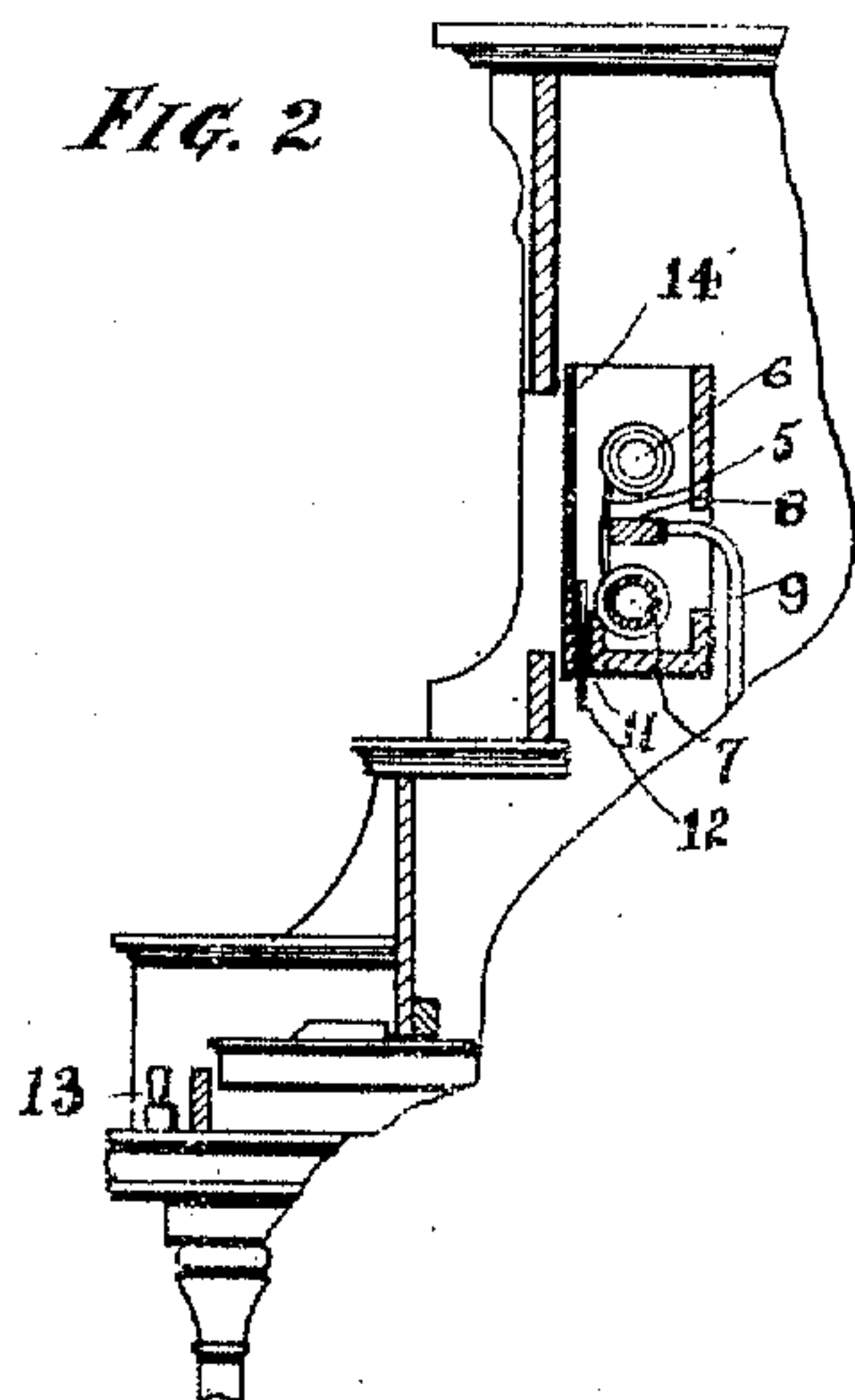
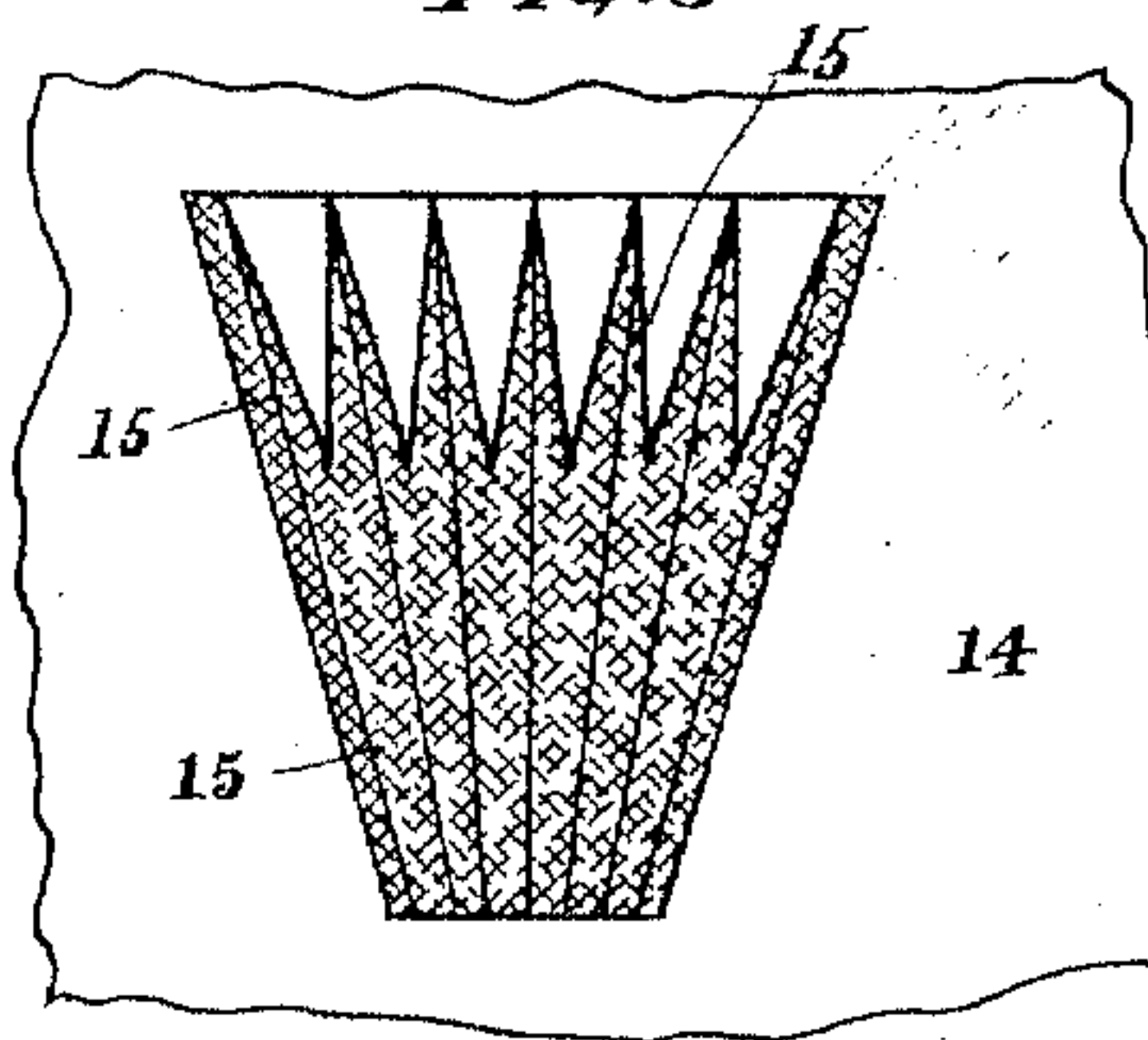


FIG. 3



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE H. BENT, OF HINSDALE, ILLINOIS, ASSIGNOR TO GEORGE P. BENT COMPANY,
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TEMPO-INDICATOR FOR MECHANICAL MUSICAL INSTRUMENTS.

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To all whom it may concern:

Be it known that I, GEORGE H. BENT, a citizen of the United States, residing at Hinsdale, in the county of Dupage and State of Illinois, have invented certain new and useful Improvements in Tempo-Indicators for Mechanical Musical Instruments, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improved devices for varying and controlling the time or tempo of the music produced by mechanical musical instruments in which the note sounding devices are controlled by a longitudinally traveling music-sheet.

It is customary in mechanical instruments, which term is here intended to include mechanical players for key-board musical instruments either built into or separate from the instrument itself, to provide means for modifying the tempo by altering the speed at which the music-sheet is moved over the tracker-bar, such means being usually manually controlled by a lever extending to a convenient point for the hand of the operator or player and provided with a pointer adapted to move over or adjacent the tempo-scale which indicates the time. It is also customary to provide the music-sheets used on such mechanical musical instruments with symbols or indicating means extending in sequence in the general direction of its length but deviating in zig-zag or sinuous manner laterally from side to side indicating the speed at which the sheet is to be moved over the tracker, this usually being provided by a tempo-line as is now well known.

My present invention unites with the tracker-bar and tempo-pointer, a tempo-scale or indicator by which any composition may be correctly phrased by the player or operator moving the tempo-pointer to a mark corresponding with the mark on the tempo-scale or indicator indicated by the tempo-symbol at the tracker-bar.

I will describe a practical embodiment of my invention and then point out its novel features in the appended claims.

In the drawings, which illustrate a practical embodiment of my invention applied to an inner-player piano, Figure 1 is a front elevation of so much of a mechanical musical instrument as is required to illustrate my

invention; Fig. 2 is a vertical sectional view of parts of Fig. 1, and Fig. 3 is a detail view of the preferred form of tempo-indicator employed.

Referring to the drawings, the reference numeral 5 indicates a music-sheet which is mounted in the usual manner upon the rolls or spools 6 and 7, which are provided with suitable and well-known devices not herein-shown for winding the music sheet from one spool to the other to draw it across the surface of the tracker-bar 8, which is provided with a series of ducts communicating by tubes 9 with the respective note-sounding devices of the machine. The driving mechanism for the music-sheet is usually propelled by a motor operated either by air under pressure, or by atmospheric pressure induced by exhausting the air through the motor, and as these features form no part of my present invention and may be provided in various forms they need not here be described or shown.

The music-sheet is provided with any suitable means or symbols extending in the general direction of its length but deviating in zig-zag or sinuous manner laterally from side to side for the purpose of indicating different times or tempos to be produced in playing at different intervals, and in the present exemplification the sheet bears the irregular line 10 which bends to the right or left as the music should be accelerated or retarded for the purpose of indicating the time or tempo at which the music-sheet is to be moved over the tracker-bar. The controller by which these effects are governed may be provided to regulate the driving mechanism in any suitable manner, and for this purpose I have shown a tempo-scale 11, pointer 12 in front of said scale, and tempo-lever 13 for moving the pointer over the scale, all arranged and cooperating in a manner now well known in the art for controlling the speed of the sheet-driving mechanism.

The music-sheet and rolls are arranged in a suitable chamber or box whose front is closed by a sliding panel 14 composed in whole or in part of glass or other transparent material and the transparent portion of this panel in front of the line 10 at the tracker-bar is provided with a tempo indicator which in the present form consists of a series of lines 15 which are fanned out at one end

to cover the lateral area of play or movement of the sheet's tempo-line or symbols at the tracker-bar and converge at the other end toward the scale of the tempo-pointer.

5 To correctly phrase any composition marked with such tempo-line or equivalent symbols, the operator moves the tempo pointer or lever to the mark on its scale to correspond with the mark or line on the tempo-indicator
10 at which the tempo line enters the latter or at which it is visible at the tracker-bar. The panel upon which the tempo-indicator is preferably located is adapted to slide back and forth to open and close the box for the
15 music-rolls and sheet, and when it is in normal closed position the tempo-indicator is brought into proper relation with respect to the tempo-pointer and the tempo-line or equivalent markings at the tracker-bar.

20 The tempo-indicator may be employed to play 65 or 88 note music as desired; and it may be varied in form and embodiment in any suitable manner to indicate at the tempo-pointer the required speed of the music-sheet at the tracker-bar, without departing
25 from the scope of my invention.

I claim:—

1. In a mechanical musical instrument, a tracker-bar, a music-sheet having expression-markings thereon, means for regulating
30 the speed of the music-sheet over the tracker-bar and having a tempo-pointer, and a tempo-indicator at the markings and the tempo-pointer to indicate for the pointer the
35 required speed of the sheet at the tracker-bar.

2. In a mechanical musical instrument, a tracker-bar, a music-sheet having tempo-markings thereon, means for regulating the
40 speed of the music-sheet over the tracker-bar and having a tempo-pointer for the tempo-scale, and a tempo-indicator consisting of a panel having a series of lines extending over the area of the tempo-markings on the sheet at the tracker-bar and at
45 the tempo-pointer to indicate for the pointer the required speed of the sheet at the tracker-bar.

3. In a mechanical musical instrument, a
50 tracker-bar, a tempo scale, means for regulating the speed of a music-sheet over the tracker-bar and having a pointer for the tempo-scale, and a panel movable over the bar and having a tempo-indicator consisting
55 of a series of lines extending over the area of the tempo-indicating means on the sheet at the tracker-bar and converging to the tempo-scale to indicate thereat the required speed of the sheet at the tracker-bar.

4. In a mechanical musical instrument, 60 the combination of a tracker-bar, a music-sheet having marked thereon symbols to indicate effects to be produced in playing, and a controller adjusted by the operator by which such effects are governed, a pointer 65 on the controller, and a tempo-indicator at the bar and pointer coöperating with the latter.

5. In a mechanical musical instrument, the combination of a tracker-bar, a music- 70 sheet having marked thereon a line which indicates the time to be followed in playing, a controller for regulating the speed of the sheet over the bar and having a pointer, and a fixed tempo-indicator extending from the 75 tempo-line at the bar to the pointer, substantially as described.

6. In a mechanical musical instrument, a tracker-bar, a perforated music-sheet having a tempo-line, tempo-controlling means 80 to regulate the speed of the sheet over the tracker-bar and having a tempo-scale and pointer, and a fixed tempo-indicator extending in fan-like form from the tracker-bar to the tempo-scale. 85

7. In a mechanical musical instrument, a chamber, a tracker-bar therein, a music-sheet having a tempo-line, means to move the sheet over the tracker-bar, a tempo-scale and pointer, a sliding glass panel forming a clo- 90 sure for the chamber, means on the panel at the bar and pointer to indicate at the pointer the variations in time shown at the bar by the tempo-line.

8. In a mechanical musical instrument, a 95 chamber, a tracker-bar therein, means to move over the tracker-bar a music sheet having a tempo-line, a tempo-scale and pointer, a sliding glass panel forming a closure for the chamber, and a plurality of lines on the 100 panel extending from the bar to the pointer.

9. In mechanical musical instruments, the combination with a perforated music-sheet bearing suitable marks indicating effects to be produced in playing, and a controller by 105 which said effects are governed, of an indicator at and extending across the path of the marks and at the controller to indicate at the latter the points at which the operator sets the latter to obtain the musical 110 effects represented by the marks on the sheet.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE H. BENT.

Witnesses:

ROY M. GILMER,
J. McROBERTS.