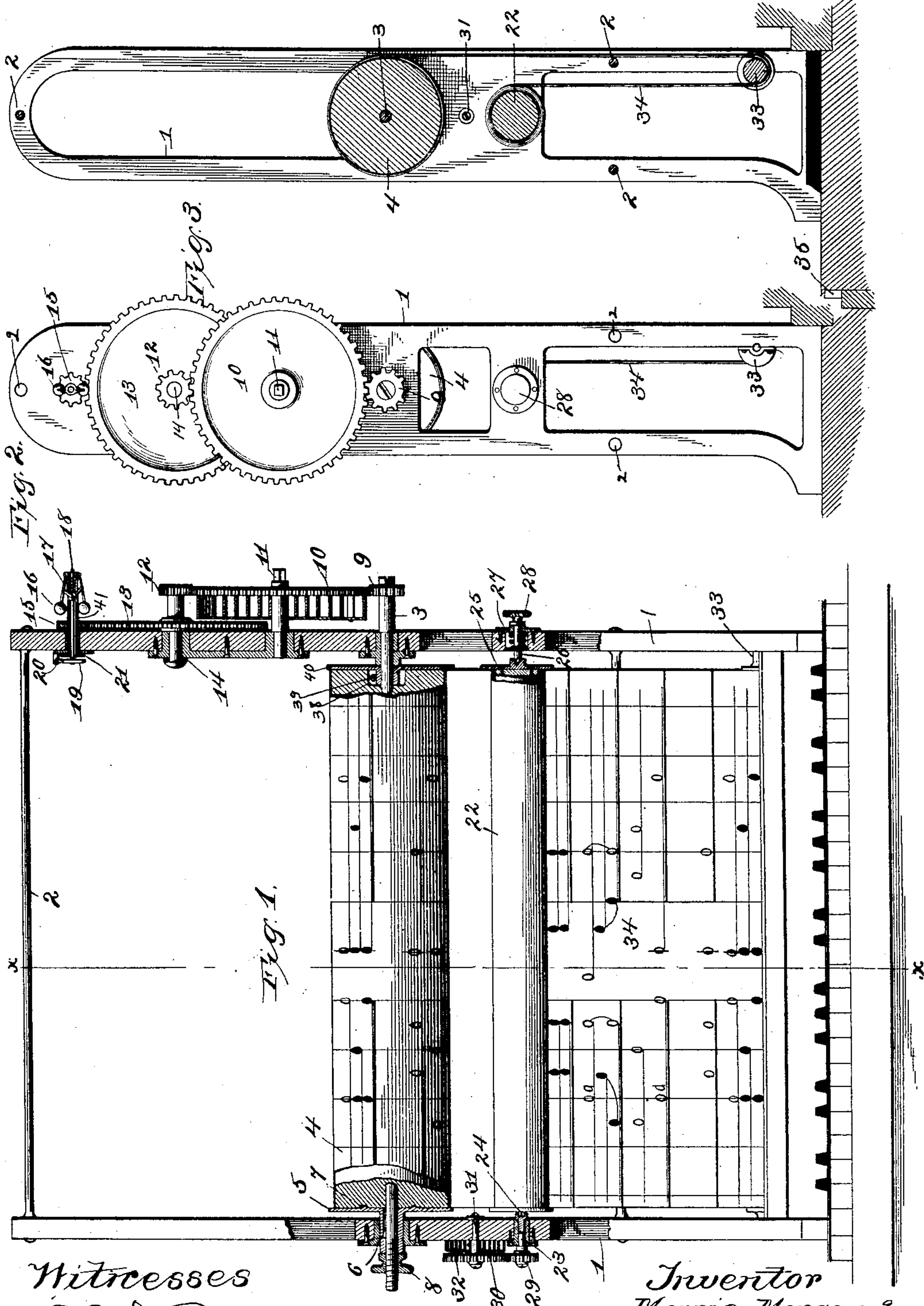


(No Model.)

M. & I. J. MORGAN.  
MUSIC INDICATOR.

No. 561,805.

Patented June 9, 1896.



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# UNITED STATES PATENT OFFICE.

MORRIS MORGAN AND IRVIN J. MORGAN, OF PHILADELPHIA, PENNSYLVANIA.

## MUSIC-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 561,805, dated June 9, 1896.

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*To all whom it may concern:*

Be it known that we, MORRIS MORGAN and IRVIN J. MORGAN, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Music-Indicators, of which the following is a specification.

Our invention relates to a new and useful improvement in indicators for the performance of instrumental music, and has for its object to provide such a device which shall automatically indicate to the performer the note or notes to be struck, thus relieving the performer of the necessity of great skill or long practice to perform music of ordinary intricacy.

With these ends in view the invention consists in the details of construction and combination of elements hereinafter set forth, and then specifically designated by the claims.

In order that those skilled in the art to which our invention appertains may understand how to make and use the same, we will describe its construction and operation in detail, referring by number to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a sectional elevation of our improvement applied to the keyboard of a piano; Fig. 2, a side elevation, and Fig. 3 a section at the line *x x* of Fig. 1.

Similar numbers denote like parts in the views of the drawings.

It is well known that to become proficient enough in instrumental music to read and play at sight requires long and tedious practice, which most persons have neither the time nor tendency to acquire. It is therefore well recognized that it is very desirable for most persons who have a taste for instrumental music to be able to perform the ordinary selection without the necessity of this undue amount of practice.

By the use of our improvement a person may perform any ordinary selection without previous practice or with but little or no knowledge of instrumental music with as much accuracy as could a finished performer, and we accomplish this result in the following manner.

1 are standards of suitable design to support the operating parts of the device, and these standards are connected together by cross-rods 2 at top and bottom, thus forming a rigid portable frame. Journaled in these standards, about midway thereof, is a shaft 3, upon which is loosely fitted a roll 4, connected with said shaft by means of the clutch-plate 5, splined to the shaft at 6 and provided with projections 7, adapted to engage with suitable notches upon one end of the roll when pressed by the thumb-nut 8, which is threaded upon the outer end of the shaft. A plate 40 is secured to the other end of the shaft 3 by means of a set-screw 39, which is adapted to revolve in a circular aperture 38 in the roll 4 when the thumb-screw 8 and the clutch-plate 5 are released, as hereinafter described. Upon the opposite end of this shaft is a small pinion 9, which meshes with a large gear-wheel 10 of any suitable spring-motor, which is provided with a wrenchhold 11, by which it may be wound. In order to regulate the speed of this motor within certain limits, a shaft 14 is journaled in the standard and carries a large gear-wheel 13 and a pinion 12, which meshes with the gear-wheel 10. The gear 13 in turn meshes with the pinion 15, which is secured upon the hollow spindle 41, adapted to revolve in a suitable bearing. Upon the outer end of this spindle are pivoted the two members of a ball-governor 16, which are connected by the usual links 17 with the central spring-actuated rod 18, which tends to hold said balls in their closed position and against the centrifugal action thereof when the spindle is revolved. To the opposite end of the rod 18 is swiveled a brake-lever 19, which is pivoted at 20, so that it will be seen that should the speed of the motor be such as to cause the members of the governor to move outward by centrifugal force sufficiently to draw the brake-lever 19 into contact with the disk 21, which is secured to the spindle 41, the friction between this lever and said disk will tend to reduce the speed of the motor and in so doing lessen the centrifugal action of the governor, when its spring will again release the brake-lever from the disk, all of which will be readily understood.



22 is a roll journaled between the standards, so that it may be readily removed or replaced without interfering with the remaining mechanism of the device, and this is accomplished by a squared socket formed on the inner end of the shaft 23, into which fits a corresponding squared plug 24, secured to the end of the roll. Secured to the opposite end of the roll is a plate 25, in which a V-shaped indenture is formed, adapted to receive the conical end of the pin 26, which latter is actuated by means of a spring 27, so as to hold it into engagement with said plate. A suitable knob 28 is formed upon this pin, by means of which it may be withdrawn from the indenture in order to remove the roll, as before described.

On the outer end of the spindle 23 is secured a pinion 29, which meshes with a gear 30, arranged upon a short shaft 31, adapted to revolve in a suitable bearing in one of the standards. A spring 32 has one of its ends connected with this shaft and the other secured to the standard, so that when the roll 22 is revolved motion is transmitted to the gear 30 and shaft 31, by means of which the spring 32 will be wound, which will give the roll 22 a tendency to move in the opposite direction for the purposes hereinafter set forth.

33 is an idle-roll journaled in the lower portion of the standards, and 34 represents a sheet of music especially arranged, which is unwound from the roll 22 and passes over this idle-roll and upward, having its ends secured to the roll 4, so that when the motor is put in motion this sheet will be wound onto the roll 4, thereby drawing it from the roll 22, which will cause the spring 32 to be wound, as before described, so that when it is desired to return the sheet to its normal position upon the roll 22 it is only necessary to disconnect the roll 4 from its shaft 3 by backing off the thumb-nut 8 and disengaging the plate 5 from roll 4, when the tension of the spring 32 will cause the roll 22 to revolve in the opposite direction, thereby winding the sheet thereon.

The music to be used in connection with the device consists of staves so arranged relative to the keys of a piano or other instrument to which the device is applied as to cause one of the lines or spaces of each staff to fall directly over one of the white keys, so that as the sheet of music passes over the idle-roll the last line of notes in view are the ones which indicate the keys next to be struck. The value of the various notes is determined by the space which intervenes between the notes vertically, the effect of which is to cause a whole note to remain in view, after having been brought into its indicating position, twice as long as a half-note, four times as long as a quarter-note, and so on, for as the sheet moves at a given rate of speed a note which occupies a half-inch vertical space upon said sheet will be carried out of its indicating position in one-half the time taken to carry a note occupying an inch of vertical space, as

will be readily understood. The stems of the several notes are used as indicating-lines to determine when the key should be released, and it is to be so released when this stem passes around the idle-roll out of view. The sharps and flats are indicated by their proper marks so placed in proximity to the note to be thrown either up or down as to fall over the black key to be struck. Thus it will be seen that little or no skill is necessary to perform a piece of music, as the notes thereof are successively brought to a position to indicate the keys to be struck in proper time.

The bottoms of the standards are adapted to rest upon the white keys and may be provided with felt or other protecting material to prevent abrasion of said keys, and in placing the device upon the keyboard of a piano the keys upon which the standards rest are held in their horizontal position by means of small blocks 35, adapted to be placed between the projecting ivory of the key and the front rail of the instrument.

Of course it will be understood that this device may be made of any length, so as to adapt it to the range of any selection of music within the compass of the instrument upon which the indicator is placed.

It is obvious that a number of modifications may be made in the construction here shown and described without departing from the spirit of the invention.

Having thus fully described our invention, what we claim as new and useful is—

1. In a device of the character described, a shaft, a plate secured to the shaft, a plate having lugs and a hub slidably keyed to the shaft, said hub forming a bearing for the shaft, a roll loosely journaled on the shaft and having apertures adapted to engage the lugs and a thumb-nut threaded on the shaft and adapted to press the plate into engagement with the roll and cause the roll to bear against the sleeve, as and for the purpose described.

2. In a device of the character described, a motor-operated shaft, a sleeve carrying a plate secured to the shaft, a second plate keyed slidably to the shaft and provided with lugs, a roll loosely journaled on the shaft and having apertures to engage the lugs, a thumb-nut threaded on the end of the shaft adapted to press the roll into engagement with the two plates, a spring-pressed roll and a band wound on said rolls, as and for the purpose described.

3. In a device of the character described, a motor-operated shaft a plate having lugs and a hub slidably keyed to said shaft, said hub forming a bearing for the shaft, a roll loosely journaled on said shaft and having apertures to engage said lugs and a thumb-nut threaded on the shaft and adapted to press the plate into engagement with the cylinder, as and for the purpose described.

4. In a device of the character described, a shaft, a sleeve attached to said shaft, a plate keyed to the shaft and provided with lugs, a roll loosely journaled on the shaft and hav-



ing apertures to engage said lugs and a thumb-nut threaded on the shaft and adapted to press the plate into engagement with the roll and cause the roll to bear against said sleeve, 5 as and for the purpose described.

5. In a device of the character described, a frame, a roll journaled therein, a spring-motor secured on the frame, a governor composed of suitably-journaled hollow spindle carrying a 10 friction-disk on its end, arms carrying balls hinged to the spindle and having hinged brace-arms, a spring-pressed pin passing through the spindle and connected to said brace-arms, a lever swiveled to the pin and 15 adapted to be brought into engagement with the friction-disk, as and for the purpose described.

6. In a device of the character described, a frame, a shaft journaled therein, a spring-motor secured to the frame, a governor for the 20 motor, a roll loosely secured on the shaft and provided with apertures in its end, a plate

slidably keyed to the shaft and having lugs to engage the apertures, a thumb-nut threaded on the shaft, and adapted to press the lugs of 25 the plate into engagement with the apertures in the roll, a band adapted to be wound on the roll, a second roll carrying said band, a spring-actuated gear-wheel secured to the frame and having a socket to engage one end of the sec- 30 ond roll, a slidable spring-pressed pin on the other side of the frame adapted to engage the other end of the second roll and an idle-roll adapted to support the band between the two rolls, as and for the purpose described. 35

In testimony whereof we have hereunto affixed our signatures in the presence of two subscribing witnesses.

MORRIS MORGAN.  
IRVIN J. MORGAN.

Witnesses:

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ALLISON W. McCURDY.