Sept. 20, 1927. 1,642,810

I. B. GRIMALDI

AUTOMATIC LIGHT INDICATOR FOR PIANOS

Filed July 21, 1925

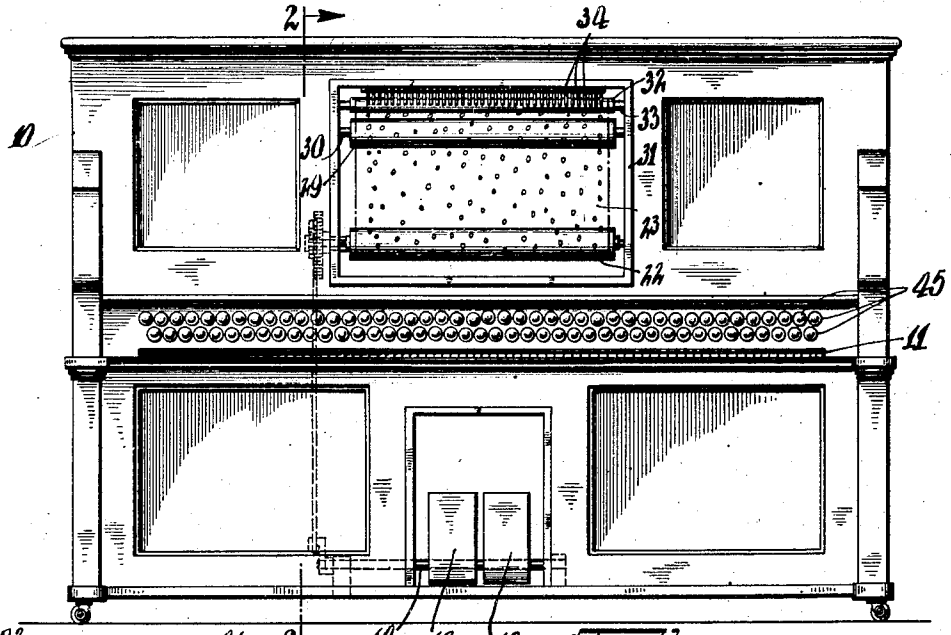


Fig. 1.

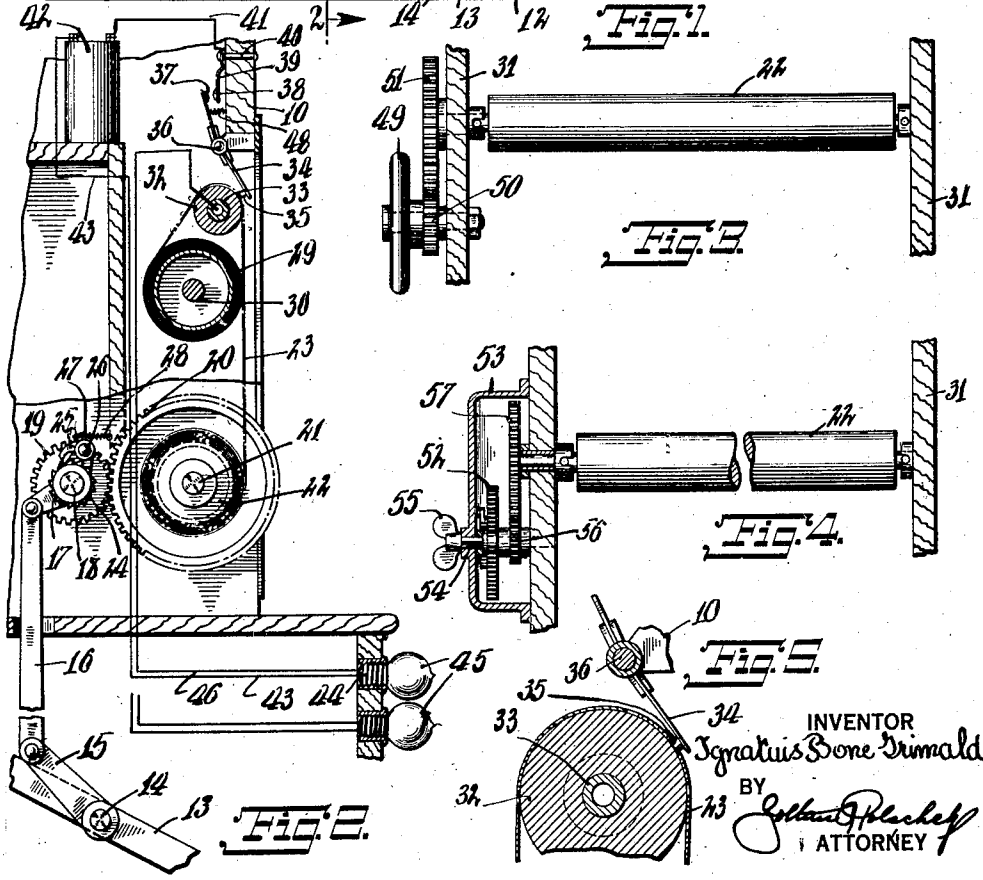


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

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Patented Sept. 20, 1927. 1,642,810

UNITED STATES PATENT OFFICE.

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AUTOMATIC LIGHT INDICATOR FOR PIANOS.

Application filed July 21, 1925. Serial No. 44,979.

This invention relates to improvements in devices for teaching the playing of piano or other key-operated music instruments, and it is the principal object of the invention to provide a player piano with means for indicating the key to be played for the sounding of a certain note of a piece of music.

Another object of the invention is the provision of a player piano with contact closers to close electrical circuits over a battery and a plurality of lamps to visibly indicate the tune corresponding to the note so as to enable a scholar to follow by the depressions of the key corresponding to the note or tune indicated by the lamp and thus to master by practicing in a short time, the playing of the piano.

A further object of the invention is the provision of a substitute means for the pedals of a player piano as for instance, a hand wheel or a spring.

These and other objects and advantages of my invention will become more fully known as the description thereof proceeds, and will then be more specifically defined in the appended claims.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a front view of a player-piano equipped with the device constructed according to the present invention.

Fig. 2 is a section on line 2—2 of Figure 1.

Fig. 3 illustrates a modified form of player-piano operation.

Fig. 4 is a view similar to Figure 3, and illustrates another modification.

Fig. 5 is an enlarged end elevation of a music roll.

A player piano 10 of any customary well known construction, including a keyboard 11, and foot-operated pedals 12 and 13, has attached to the shaft for said pedals 14, one end of a link 15, the other end of which is pivotally attached to the lower end of a bar 16, the upper end of which is pivoted to a link 17, secured to a shaft 18 carrying a gear wheel 19 in mesh with a gear wheel 20 on a shaft 21 which also carries a roller 22 for the sheet of music 23.

The shaft 18 carries also a ratchet wheel 24 between the teeth of which a pawl 25 engages, pivoted to a shaft 26 having a pin 27 mounted thereon, to which one end of a spring 28 is attached, the other end of which is secured to the piano frame.

The perforated sheets of music 23 are wound upon a roller 29 on a shaft 30 which can be attached to and detached from the piano in the usual well known manner in a frame 31 at the front of the piano. The perforated sheet of music 23 is then guided over a roller 32 on a metallic shaft 33, and a plurality of fingers 34 having pins 35 at their ends which engage the holes in the music sheets and are pivotally secured intermediate their ends, as at 36, to a part of the piano 10 and are adapted to produce the sound in the ordinary well-known manner.

The upper ends of the fingers carry on one side contact plates or pieces 37 adapted, during the playing of the piano, to make contact with similar contact pieces 38 on the inner faces of the lower ends of springs 39 having their upper ends attached to the piano frame by means of bolts 40, secured the wires 41 of circuits leading to one of the poles of batteries 42. The other pole of the battery is connected by wires 43 to lamp sockets 44 for lamps 45, which are also connected by wires 46 to the roller shaft 33.

Springs 48 connect the outer faces of arms 34 with the piano frame, in order to make and break the contact engagement elastically.

It will be clear that during the operation of the foot pedals of the player piano in the usual well known manner, the sheet of music will be fed by the fingers which successively and alternately engage in the holes of the sheet to produce the music in the well-known manner.

During the operation, a circuit will be successively and alternatingly closed over roller 33, the battery and the lamps over the contacts 37 and 38, so that the lamp corresponding to the tune played, will be illuminated and a scholar can follow the successively illuminated lamps by depressing the respective key indicated by the illuminated lamp, and in this manner, by a limited practice, learn to play the music piece.

In Figure 3, I have shown a modified form of operating the roller 22 by means of a hand wheel 49 on the shaft of which a gear 50 is mounted in mesh with a large gear 51 on the shaft of roller 22. The hand wheel 49 may be manually turned to cause a turning of the perforated music sheet at any desired speed, such as to enable a beginner to follow the indications, given by the signal lamps.

In Figure 4, another modification is illustrated according to which a spring 52 is located within a casing 53 having one end secured to a shaft 54 adapted to be operated by a winged key 55 and which carries a gear 56 in mesh with a gear 57 on shaft 22.

This system may also be applied to string instruments with proper changes of construction.

It will be clear that such changes as substituting prongs instead of the holes of the music sheet, and a suitable hand-drive, spring or motor to drive gear wheel 19 instead of the foot pedal, and other changes such as fall within the scope of the appended claims, may be made in the construction and in the general arrangement of the details of the invention, without departure from the spirit of the invention and the principle involved.

Having thus described my invention what I claim as new, and desire to secure by Letters Patent is:

1. A device for teaching music, particularly piano playing comprising a player piano, a frame in said player piano, a music roll rotatively mounted on said frame, a roller shaft rotatively mounted in said frame, a sheet attached to said music roll having perforations therein and adapted to be drawn over said roller shaft, a stationary contact mounted on said player piano, a lever pivotally mounted on said player piano adapted at one end to engage said stationary contact and adapted at the other end to engage said music sheet, and to project through the perforations therein and contact with said roller shaft, electric bulbs mounted on said piano, and an electric circuit comprising a battery electrically connected in series with said stationary contact, and bulb, said lever being adapted to electrically connect said stationary contact with said roller shaft when the end of said lever extends through a perforation in said music sheet for producing a predetermined signal.

2. A device for teaching music particularly piano playing comprising a player piano, a roller shaft mounted in said player piano adapted toguide the music sheets thereof, a stationary contact member mounted on said piano, a lever pivotally mounted on said piano comprising a contact member adapted to engage said stationary contact member, a projection on said lever adapted to ride upon said music sheet and to extend through the perforations therein and contact with said roller shaft, an electric bulb mounted in said piano, and an electric circuit comprising a battery electrically connected with said stationary contact and roller shaft, said lever being adapted to electrically connect said roller shaft and stationary contact when the projection of said lever extends through the perforations of said music sheet for completing an electric circuit through said bulb and battery.

In testimony whereof I have affixed my signature.

IGNATIUS B. GRIMALDI.