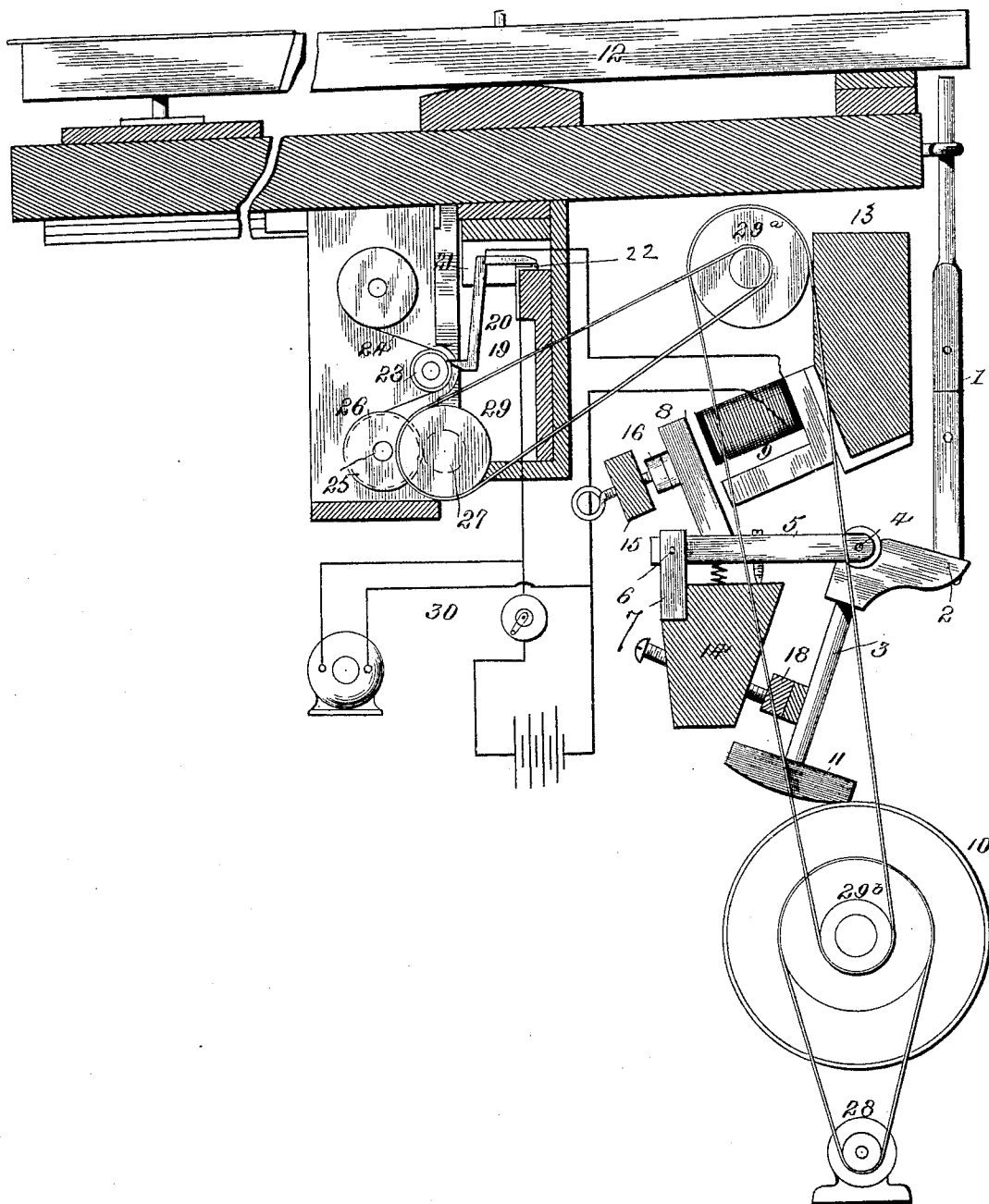


(No Model.)

H. W. SHONNARD.
KEYBOARD ATTACHMENT.

No. 580,010.

Patented Apr. 6, 1897.



Witnesses
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UNITED STATES PATENT OFFICE.

HAROLD W. SHONNARD, OF NEW YORK, N. Y., ASSIGNOR TO G. HOWLETT
DAVIS, OF SAME PLACE.

KEYBOARD ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 580,010, dated April 6, 1897.

Application filed August 24, 1895. Serial No. 560,441. (No model.)

To all whom it may concern:

Be it known that I, HAROLD W. SHONNARD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new, useful, and valuable Improvement in Keyboard Attachments, of which the following is a full, clear, and exact description.

My present invention relates to improvements in keyboard attachments for musical instruments on which a key-striker is actuated by electromagnets; and the object of my improvements is to provide a series of electromagnets having armatures so secured to the key-striking levers as to bring said levers singly or collectively as the currents are completed through the series of electric selectors over which the perforated paper music is drawn into operation, whereby the said key-striking levers are actuated to cause the respective strings which they represent to be sounded. I attain this object by the mechanism illustrated in the accompanying drawing, in which the figure is a section of the key-striking mechanism and electromagnets, and showing also the contact-box and music-rollers.

Like numerals refer to like parts throughout the drawing.

The key-striker 1 is carried by pin 2 on friction-lever 3, pivoted at 4 on lever 5, which is secured by pin 6 to the stationary post 7. The armature 8 is rigidly fastened to lever 5 and when attracted by the magnet 9 brings the foot 11 of the lever 3 into frictional contact with the rotating felt-covered roller 10, which feeds the foot 11 and the lever 3 in the direction of its rotation, thereby striking the piano-key 12 with the striker-rod 1.

The reference-numerals 13 and 14 indicate wooden rails to which the various parts of the mechanism are secured, and the numeral 15 indicates a rail provided with a series of adjustable buttons 16 to correspond with and which acts to limit the movement of the armatures 8.

The numeral 18 indicates a felt-faced rail of wood or other material to form a stop for the friction-levers 3, said rail being made adjustable by means of screws, as shown.

Reference-numeral 19 indicates a box pro-

vided with a series of pivoted levers or electric selectors 20, carried in an insulating-block 21, said selectors by gravity being normally in electrical contact with the terminal block 22 and their pointed extremities at the same time projecting into the slotted bar 23, except when prevented by the presence of the perforated paper music 24 on the bar 23, which paper is drawn by the roller 25, carrying a gear 26, meshed with pinion 27, which is rotated by the motor 28 through the system of belts and reduction-pulleys 29.

The music-rollers and the slotted bar 23 are all carried by a hanging drawer which slides in guides attached to the under side of the piano-keyboard, as shown in the drawing. When it is desired to place a new sheet of music in the instrument, it is simply necessary to pull out the drawer and apply the ordinary perforated music-roll, which comes especially put up for this class of attachments.

The operation of my device may be briefly stated as follows: When the music-sheet drawer is pushed back in position for operating, the gear-wheel 26 will be made to mesh with the pinion 27 and the electrically-connected pivoted levers 20 brought into position with relation to the music-sheet and slotted bar 23, so that as soon as the driving-motor 28 is started the perforated music-sheet 24 is caused to travel, and as the pivoted levers or selectors are normally pressing against the said sheet they register with the perforations and fall or pass therein, thereby allowing the upper lateral arms of said levers or selectors to make electrical connection with the contact-block 22, energizing the electromagnets 9, whereby the armatures 8 are attracted, causing the levers 5 to be pressed down, which in turn brings the friction-shoes 11 into contact with the periphery of the rotary drum, giving said shoes a rocking movement and causing the rods 1, which are pivoted to the upper part of the shoes, to be given a sudden upward movement, which movement is communicated to the rear ends of the piano-keys and accordingly to the string-striking hammers.

Numeral 30 shows the system of electrical connections, including a switch 31, battery 32, and a motor 28.

I am aware that it is not broadly new to provide a musical instrument of the self-playing type with a plurality of pivoted levers that are adapted to drop or fall into perforations in the note-sheet as the same is advanced, and thereby actuate the striking mechanism, and I do not claim such combination of parts, broadly. My invention is distinguished from musical instruments of this type in that the levers are pivoted to a fixed or stationary part of the instrument and the note-sheet is carried by a movable drawer sliding to and from the pivoted levers, thus enabling the music-sheets to be easily placed into and removed from the drawer, and at the same time providing an instrument wherein the music-drawer can be located out of sight and out of the way of persons performing upon the piano in the ordinary manner.

What I claim is—

1. In an electrically-operated self-playing piano, the combination with suitable key-operating mechanism, of a plurality of electrically-connected pivoted levers arranged on a stationary part of the piano, a contact-block carrying a plurality of electric contacts with which the upper ends of the levers are by gravity made to engage, a sliding drawer arranged in front of and operating to move to and from the pivoted levers, music-sheet rollers journaled one above the other in said drawer, a slotted bar between said rollers, and a perforated music-sheet carried by said rollers and traveling over the slotted bar, the lower end of said levers being arranged to drop or pass through the perforations in said music-sheet as the same is advanced, substantially as described.

2. In an electrically-operated self-playing piano, the combination with suitable key-operating mechanism, of a plurality of electrically-connected levers pivoted near their upper ends and having rearward and forward extending arms, said levers being carried by a stationary part of the piano, a contact-block arranged directly beneath the rearward-extending arms of said levers and with which said arms are arranged to engage, a sliding drawer in front of and moving to and from said pivoted levers, music-sheet rollers journaled one above the other in said drawer, a slotted bar arranged intermediate said rollers, and a perforated music-sheet carried by said rollers and traveling over the slotted bar, the forward-extending arms of said levers being arranged to enter or pass into the perforations in the music-sheet as the same advances, substantially as described.

3. In an electrically-operated self-playing piano, the combination with the key-actuating mechanism, of a plurality of electrically-connected pivoted levers mounted on a stationary part of the piano, a contact-block with

which the upper ends of said levers are adapted to engage, a sliding drawer arranged in front of and moving to and from the said pivoted levers, music-sheet rollers journaled in said drawer, a slotted bar intermediate said rollers and in a line with the lower ends of the pivoted levers, a perforated music-sheet traveling over said rollers, a gear-wheel mounted on the end of one of said rollers and carried by the sliding drawer, a pinion carried by a fixed part on the piano and adapted to mesh with the said gear-wheel, and means for revolving said pinion whereby the music-sheet is advanced, substantially as described.

4. In an electrically-operated self-playing piano, the combination with a perforated music-sheet carried by a sliding drawer, of a plurality of electrically-connected pivoted levers mounted on a stationary part of the piano in rear of the music-sheet, each of said levers having a rearward and forward extending arm, an electric contact directly beneath each of said rearward-extending arms, the forward-extending arms of said levers being arranged to enter the perforations in the music-sheet, a plurality of electromagnets in circuit with the contact-block and levers, an armature-lever for each magnet, a friction-shoe pivoted to each armature-lever, a rod connection between each shoe and a key of the piano, and a rotary drum with which the shoes are brought in contact when the magnets are energized through the movements of the pivoted levers, substantially as described.

5. In an electrically-operated self-playing piano, the combination with a sliding drawer, and a perforated music-sheet carried by said drawer, of a plurality of vertically-arranged electrically-connected pivoted levers carried by a fixed part on the piano and having their lower ends in engagement with the music-sheet, a contact-block with which the upper ends of said levers are adapted to engage, a plurality of forwardly-inclined electromagnets in circuit with the said levers and contact-block, a series of horizontal levers, a rearwardly-inclined armature-lever projecting upward from the upper side of each of said horizontal levers, a friction-shoe pivoted to the rear end of each horizontal lever, a rod connection between each shoe and a key of the piano, and a rotary drum with which the friction-shoes are brought into contact when the magnets are energized through the movements of the pivoted levers, substantially as described.

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

HAROLD W. SHONNARD.

Witnesses:

G. HOWLETT DAVIS,
WILLIAM H. WEICK.