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COIN OPERATED MECHANISM FOR AUTOMATIC PIANOS.

APPLICATION FILED JAN. 18, 1913.

1,097,033.

Patented May 19, 1914.

2 SHEETS—SHEET 1.

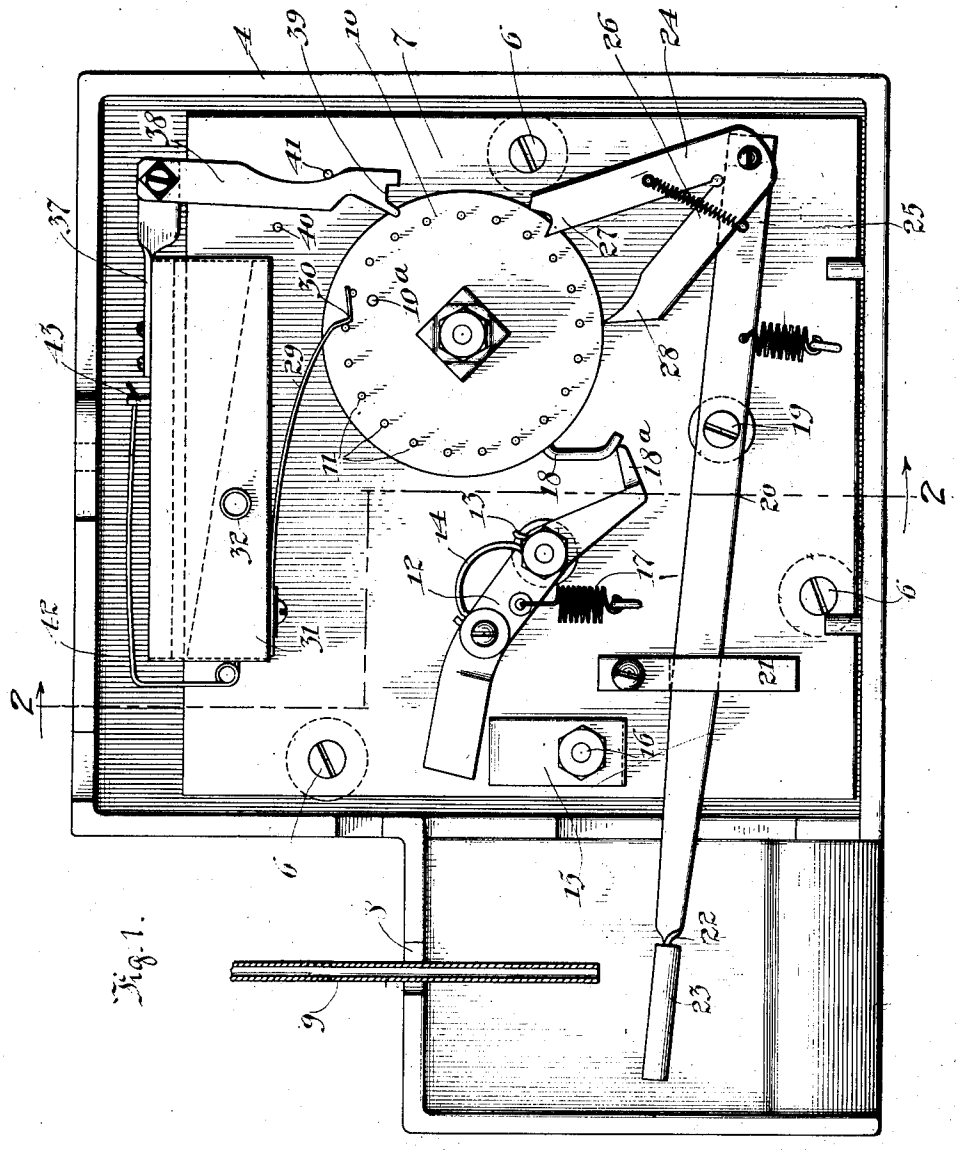


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

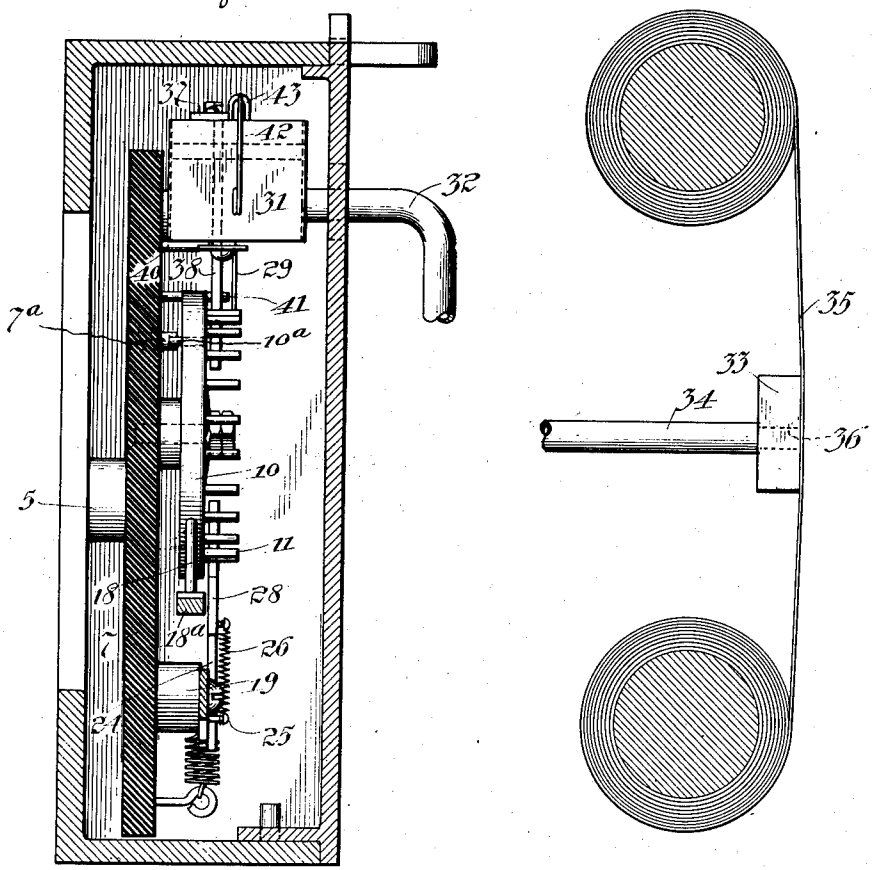
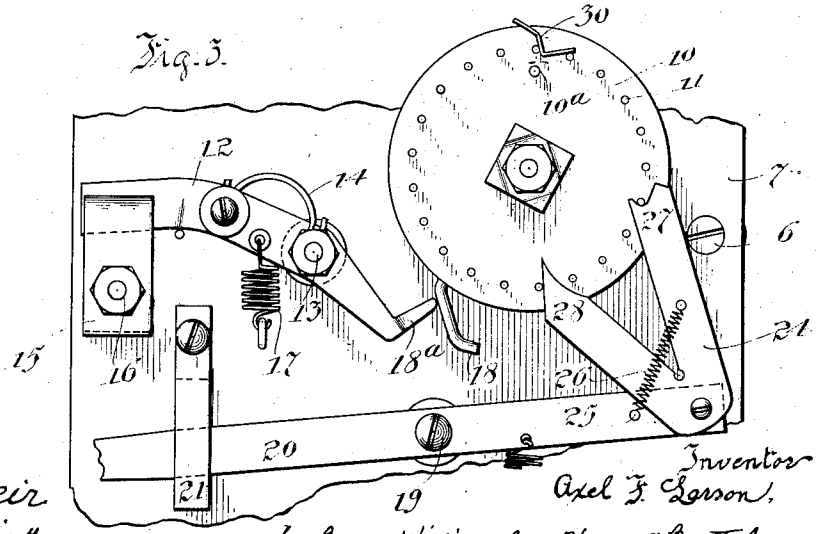


Fig. 3.



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UNITED STATES PATENT OFFICE.

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COIN-OPERATED MECHANISM FOR AUTOMATIC PIANOS.

1,097,033. Specification of Letters Patent. Patented May 19, 1914.

Application filed January 18, 1913. Serial No. 742,841.

To all whom it may concern:

Be it known that I, AXEL F. LARSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Coin-Operated Mechanism for Automatic Pianos, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to coin operated mechanism for automatic pianos, and its object is to provide a mechanism of this class which may be economically constructed and which is simple in its mode of operation.

The coin operated mechanism of my invention is particularly adapted for use in connection with pneumatically operated pianos which derive their power from an electric motor. The mechanism is provided with a rotary member which normally holds in its open position a switch controlling the circuit for the motor with which the piano is provided. This rotary member is advanced by means of suitable lever mechanism when a coin is dropped into the coin chute of the piano, thus closing the circuit of the electric motor. Suitable means controlled from the tracker-board of the piano is provided for by setting back this rotary member when a predetermined number of musical selections have been played by the piano. These and other features of the coin operated mechanism of my invention are described in detail in the following description and are illustrated in the accompanying drawings, in which:

Figure 1 is a front elevational view of the coin operated mechanism of my invention, the cover for the casing thereof being removed. Fig. 2 is a vertical sectional view thereto taken on the line 2—2 of Fig. 1, and looking in the direction indicated by the arrows. In this view the relation of the coin operated mechanism to the tracker board is illustrated diagrammatically. Fig. 3 is a fragmentary view in front elevation showing the rotary member in one of its advanced positions.

Similar characters of reference refer to similar parts throughout the several views.

Referring to Figs. 1 and 2, at 4, I have shown the casing for my coin operated mechanism, this casing being provided with a plurality of studs 5—5, as shown. Secured on the studs 5—5, by means of screws 6—6, is a plate 7, of insulating material, such for instance, as slate. In the top of the left hand side of the casing is an opening 8, through which extends the coin chute 9 of the automatic piano with which the coin operated mechanism is associated. Rotatably mounted upon the plate 7 is a disk 10, preferably of insulating material, which disk is provided with a plurality of pins 11, projecting therefrom. These pins are arranged in regular order around the periphery of the disk. Pivoted to the plate 7, is a knife switch blade 12, which is provided with a terminal 13 and a conductor 14, electrically connecting the switch blade with the terminal. A pair of jaws 15, which are secured to the plate 7, are provided with a terminal 16, as shown. In Fig. 1 the switch blade 12 is shown out of engagement with the jaws 15, and in Fig. 3 the switch blade is shown in engagement with the jaws. The coiled spring 17, tends to draw the blade 12 into engagement with the jaws 15 at all times. As clearly illustrated in Figs. 1 and 3, the disk 10 is provided with a cam 18, which, when the disk is in the position shown in Fig. 1 engages the arm 18^a of the blade 12, and holds the blade out of engagement with the jaws 15. Pivoted to the plate 7 at 19 is a lever 20, which is provided with a guide of insulating material, illustrated at 21. The lever 20 is also provided with a portion 22 located directly below the chute 9, which portion 22 is provided with a sleeve 23 of rubber or other suitable yielding material. Pivoted to the lever 20 at the end opposite the sleeve 23 is a V-shaped member 24, which is held in yielding engagement with a pin 25, by means of a coiled spring 26. This V-shaped member 24 is provided with a bifurcated end 27, and an obliquely cut end 28.

It will be readily seen by referring to Fig. 1 that as a coin descends through chute 9, it strikes the sleeve 23 of the lever 20 thus bringing the ends 27 and 28 of the V-shaped member 24 in engagement with the pins of the disk 10. The disk is advanced one step for each actuation of the lever 20. A wire spring 29 provided with a cam portion 30 retains the disk 10 at any position to which it may be moved by means of the lever 20. This spring 29 is supported by the base of a pneumatic 31, which will be hereinafter de-

scribed. When the lever 20 is actuated and the disk 10 correspondingly advanced the cam 18 is drawn out of engagement with the arm 18ª of the switch blade 12, whereupon the spring 17 draws the blade 12 into engagement with the jaws 15, and closes the circuit of the electric motor from which the power necessary to operate the playing parts of the piano is derived. A pin 10ª carried by the disk 10 abuts against a pin 7ª carried by the plate 7, when the disk is in the position shown. This pin 10 engages the pin 7ª when the disk has made one complete rotation; thus preventing further rotation of the disk even though the lever 20 be actuated.

Retained in the upper part of the casing 4, is a pneumatic 31, which is provided with an exhaust tube 32, as shown. This tube has communication with one of the vacuum producing devices with which the automatic piano is provided. The communication of this tube 32 with the vacuum producing devices is controlled from the tracker board 33 through a suitable tube 34. That is, after a selection has been played by the piano a suitable aperture in the music roll 35 comes into register with the hole 36 of the tracker board with which hole the tube 34 has communication, thus opening communication between the vacuum producing devices and the pneumatic 31, and collapsing the pneumatic.

Secured to the upper portion of the pneumatic 31 is a bracket 37, to which is pivoted an arm 38, which is bifurcated at 39, as shown. Pins 40 and 41 supported by the plate 7, limit the side to side movement of this arm 38. A spring 42 having its free arm bearing in a staple 43, secured in the upper portion of the pneumatic 31, normally tends to retain the pneumatic in open position.

The operation of the mechanism is as follows: If a coin be dropped in the chute 9, the lever 20 is actuated, thus accomplishing the one step advancement of the disk 10, which draws the cam 18 carried by the disk out of engagement with the arm 18ª of the switch blade 12. The coiled spring 17, thereupon draws the blade 12 into engagement with the jaws 15 and closes the circuit of the motor with which the piano is provided and thus operating the playing mechanism. If a coin deposited in the chute 9 is intended to pay for one selection, a suitable aperture in the music roll 35 comes into register with opening 36 in the tracker board after one selection has been played. This opens communication between the vacuum producing devices and the pneumatic 31, collapses the pneumatic against the action of spring 42 and brings the bifurcated end 39 of the arm 38 into engagement with one of the pins 11 and moves the disk 10 one step in a clockwise direction, thus bringing the cam 18 into engagement with the arm 18ª of the switch blade 12 and forces the switch blade out of engagement with the jaws 15. This, of course, opens the electric motor circuit, and stops the operation of the playing mechanism of the piano. If a number of coins be deposited in the chute 9 in succession the disk 10 is advanced one step for each coin deposited. The pneumatic 31 must, therefore, be operated once for every coin deposited in the slot 9 before the playing of the piano ceases. By providing the music sheet 35 at suitable intervals along its face with suitable apertures adapted to come into register with the hole 36, of the tracker board, the piano may be adapted to play one selection or more than one selection for each coin deposited, as desired.

While I have illustrated my invention in the particular embodiments herein shown and described, I do not wish to be limited to these particular constructions, but desire to claim any equivalent embodiments of my invention which may suggest themselves to those skilled in the art.

What I claim is:

1. A mechanism of the class described, comprising a rotary disk provided with a plurality of pins arranged in regular order around its periphery, an electric switch, spring means normally tending to hold said switch in closed position, a cam carried by said disk adapted to retain said switch in open position when the disk is in its normal position, a coin operated lever provided with devices adapted to engage the pins of the disk to effect the one-step advancement of the disk for each actuation of the lever, yielding spring means retaining the disk in actuated position when operated, and pneumatic means adapted to engage the pins of the disk to set back the disk one step for each operation of said pneumatic means.

2. A mechanism of the class described, comprising a rotary disk, pins projecting from one face of said disk near the periphery thereof, said pins being arranged in regular order, a coin operated lever, arms carried by said coin operated lever arranged to engage the pins of the disk to effect the one step advancement of said disk when the lever is actuated, a switch, means for holding the switch in closed position when the disk is out of normal position, means carried by the disk arranged to retain the switch in open position when the disk is in normal position, and pneumatically controlled means arranged when operated to move the disk one step in a direction opposite to the direction in which it is moved by the actuation of the coin lever.

3. A mechanism of the class described comprising a rotary disk, a plurality of pins arranged in regular order around the periphery of said disk, a coin operated lever comprising means arranged to engage said

pins and adapted when actuated to effect the advancement of said disk, mechanism adapted when operated to move the rotary disk in the reverse direction, an electric switch disposed adjacent said disk and a spring tending to hold said switch in one of its positions, said disk comprising a cam portion adapted to hold the switch in another position when said rotary disk is in a certain one of its angular positions.

In witness whereof, I hereunto subscribe my name, this 10th day of January, 1913.

AXEL F. LARSON.

Witnesses:
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Leslie W. Fricke.