E. B. SHERMAN.

OPERATING CONTACT FOR AUTOMATIC PIANO PLAYERS.

APPLICATION FILED JAN. 10, 1910.

1,052,427.

Patented Feb. 4, 1913.

2 SHEETS—SHEET 1.

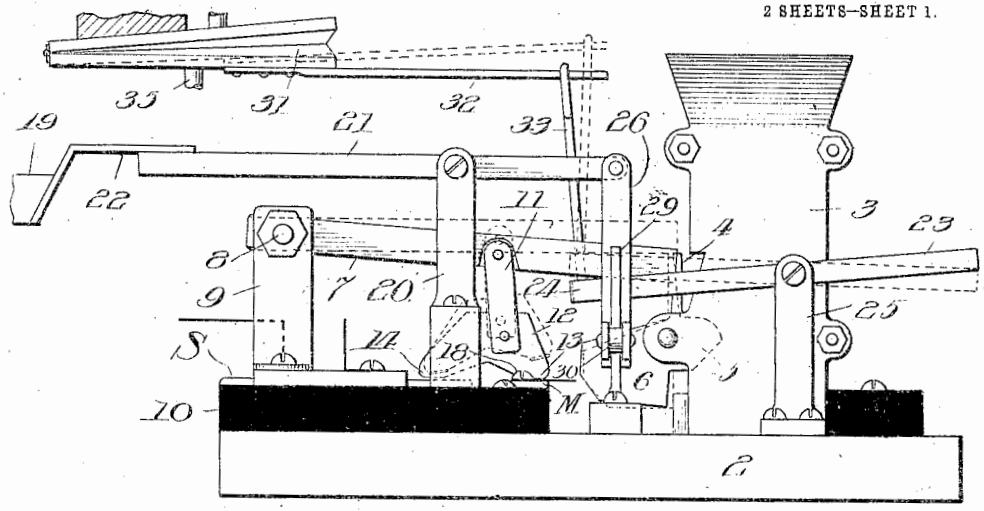

Fig. 1.

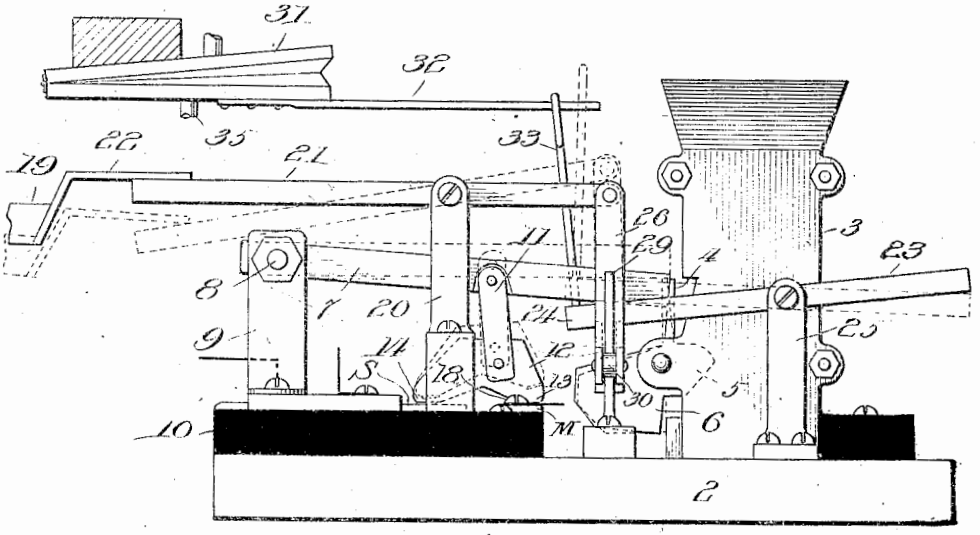

Fig. 2.

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Fig. 3.

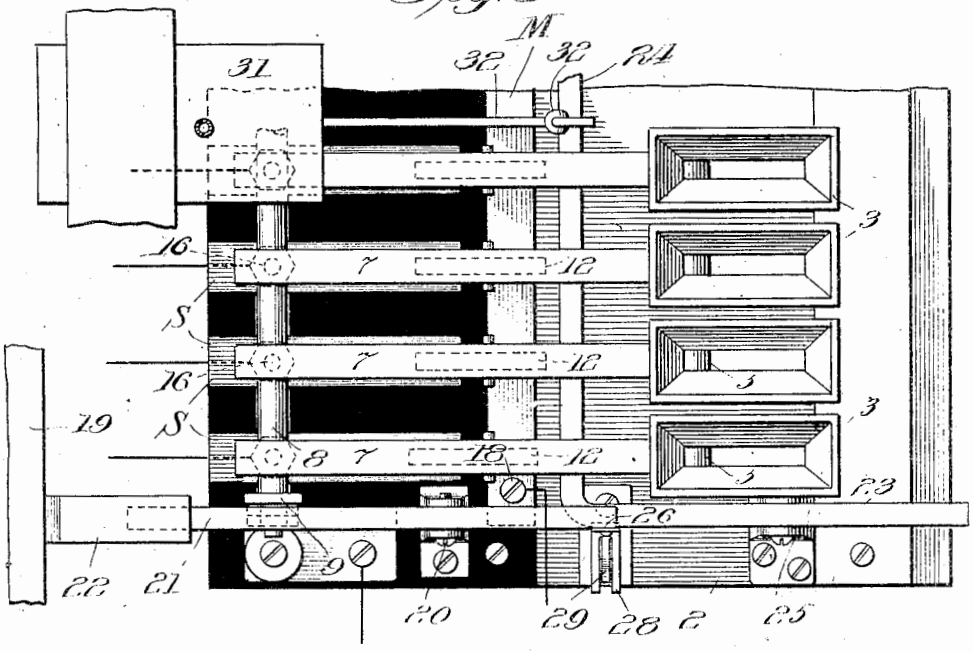


Fig. 4.

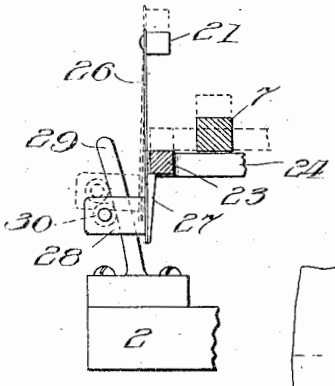


Fig. 6.

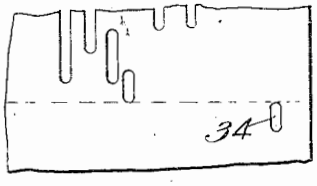
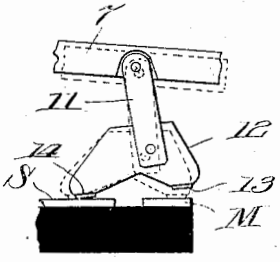


Fig. 5.



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UNITED STATES PATENT OFFICE.

EDGAR B. SHERMAN, OF CHICAGO, ILLINOIS.

OPERATING-CONTACT FOR AUTOMATIC PIANO-PLAYERS.

1,052,427. Specification of Letters Patent. Patented Feb. 4, 1913.

Application filed January 10, 1910. Serial No. 537,313.

To all whom it may concern:

Be it known that I, EDGAR B. SHERMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Operating-Contacts for Automatic Piano-Players, of which the following is a full, clear, and exact description.

My invention relates to a circuit-former comprising a "tri-point" adapted to be used in connection with a coin-controlled automatic piano player or similar device of a type substantially corresponding in construction to that set forth in an application for Letters Patent of the United States in the name of Edwin A. Kingsley and Karl O. Carlson, filed March 3, 1909, Serial No. 481,068.

The object of my invention is to produce a device of this character that is adapted to be released by a falling coin to form a selective and motor circuit, and then reset automatically by mechanical means.

A further object is to so construct and arrange the parts that it is impossible to defraud the machine by playing more than one selection or repeating the same selection on the piano by a single coin.

I accomplish these objects by the means and in the manner hereinafter fully described and as more particularly pointed out in the claims, reference being had to the accompanying drawings, forming a part hereof, in which,

Figure 1 is a vertical end elevation of my improved mechanism showing the same as having been released by a coin and then reset through the medium of an independent "pneumatic", the latter position being illustrated by dotted lines. Fig. 2 is a view of the mechanism in a position similar to Fig. 1 illustrating in dotted lines the manner of resetting the same pneumatically by means of the hinged tracker-board of the piano playing mechanism. Fig. 3 is a top plan view of the device, in which only four coin-chutes and their connected mechanism, are shown the remainder being broken away. Fig. 4 is a fragmentary front elevation showing in detail the construction and operation of the automatic latch that is used in resetting the device. Fig. 5 is a fragmentary side elevation showing in detail one of the contact-feet and the operation of the same in forming the contact. Fig. 6 is a fragmentary plan view of the rear end of a music-roll adapted to be used in connection with my improvements to operate the pneumatic for breaking the circuits.

In operating an automatic piano-player of the type to which my invention relates, two main electrical circuits are necessary (only the terminals of which are shown for convenience). One of these when closed starts the motor for driving the pneumatic or bellows, the unwinding and rewinding of the music-roll and related parts, and the other circuit operates the mechanism for selecting the proper roll of music corresponding to the one selected by the person depositing the coin in the respective chute. These circuits are adapted to be closed by the depositing of a coin in one of a series of coin-slots in a remote portion of the machine, and this falling coin will release the mechanism holding the selector-circuit opened, which is adapted to stop the music-roll carrying-drum so that the music sheet desired will be brought under the tracker-board. In carrying out my invention in connection with this mechanism, I employ suitable instrumentalities which will be understood by reference to the drawings in which 2 represents a suitable base or platform upon which a row of vertically disposed coin-chutes 3, 3, are mounted, one for each tune or music-roll mounted within on the music-roll-drum. The forward vertical walls of these coin-chutes are, preferably, cut away for a short distance to leave a slot in which suitable vertically disposed trips are pivotally mounted. These trips are pivotally mounted between lugs projecting from the edge of the chute, and preferably comprise a member 4 having a lateral arm 5 projecting toward and through the slot into the coin-chute.

In order to keep the trip in normal position a counterweight 6, forming a part thereof is formed on the side of the pivot pin opposite the lateral arm 5. The function of these trips is to support the free ends of the series of independent contact-carrying bars 7 when any of the same are not in use as shown in dotted lines in Figs. 1 and 2 of the drawings. These bars are preferably arranged in parallel order in front of the coin-chutes and have their ends opposite said chutes pivotally connected to a horizontally disposed rod 8. The ends of this rod are mounted in suitable vertical

standards 9 that form one member of an L-shaped bracket secured to an insulation plate 10 mounted longitudinally on the front edge of the base or platform 2.

Swinging loosely from pivotal bearings one on each side of and mediate the ends of bars 7 are swinging hangers 11 that have substantially V-shaped double contacts 12 pivotally mounted between the lower swinging ends thereof. These contacts preferably bridge the space between suitable circuit terminals or contact plates and have small contact shoes 13, 14, on their lower ends. The pivot of these contacts is slightly to one side of the center of length thereof so that one of the shoes (the one on the heavier side of the contact) will reach the contact-plate ahead of the other, and while this latter foot is reaching its contact position the former shoe will slide on the contact-plate a distance sufficient to scrape and clean the same so that a perfect contact will be made. A plurality of parallel "selector-circuit" contact-plates S, S, are secured to the plate 10 mounted on base 2, directly below and in vertical alinement with the bars 7 and are so arranged that their forward ends terminate at the edge of the platform 2, and their opposite ends back of the shoes 14 of the contacts are each provided with binding posts or terminals 16, 16, of the "selector-circuit" of the apparatus. These posts are preferably mounted on the ends of contact-plates S, S, at a point substantially below and in vertical alinement with the rod 8.

Mounted back of the rear ends of the selector-plates is a longitudinally elongated contact-plate M for the "motor-circuit" that is provided with a binding-post 18 to which the wire of the motor-energizing-circuit is secured. This "motor-circuit" is adapted to be closed each time a coin passes through one of the coin-chutes and trips the bar 7 thereby starting the motor for driving the pneumatics and related parts of the piano-playing apparatus. As soon as the "motor-circuit" is closed the hinged tracker-board 19 (a diagrammatical rear portion only of which is shown herein) moves into engagement with the music-sheet and its rear end will occupy a position as shown in full lines in Figs. 1 and 2 of the drawing. When, however, the current is turned off, the tracker-board rises, causing the lowering of the rear end to the position shown in dotted lines (Fig. 2) which will automatically raise the selector bar 7 to its normal position, as will hereafter fully appear.

Mounted on a suitable standard 20 rising from the insulation 10 is a lever 21, which is operated by the movement of the rear end of the tracker-board to which said lever is operatively connected by a suitable extension 22. A suitably shaped elevating yoke 23 having a connecting member 24 that passes under all of the supporting bars 7, is mounted alongside the end of lever 21 and has its parallel arms pivotally mounted in suitable vertical standards 25 secured to and rising from the platform 2. This elevating yoke 23 is adapted to be raised by the downward movement of the end of the tracker-board coöperating with lever 21 and is operatively connected to said lever by means of a flexible hanger 26 pendent from the end thereof. This hanger is preferably of spring metal and its face next the yoke is provided with a lug or shoulder 27 adapted to engage the under surface of one of the adjacent arms of yoke 23. A pair of guide-lugs 28, 28, project from the lower end of the hanger 26, upon the side thereof opposite lug 27, and are adapted to pass on each side of an outwardly inclined substantially vertical finger 29 rising from a plate secured to platform 2.

In order to withdraw the shoulder 27 from beneath the yoke after the bar or bars 7 have been elevated and set a small anti-friction roller 30 is journaled between the outer ends of guide-lugs 28 so that it will engage the outer edge of the inclined finger 29 and, as the hanger rises, the bars will be elevated until they have been reset and then the roller will pull the shoulder from under the yoke and return automatically to its normal position. As the tracker-board leaves the music-sheet every time the current is turned off it will be seen that this movement will cause the "selector-circuit" and "motor-circuit" to be instantly broken and the machine stopped until another coin has been dropped into one of the chutes to release a trip.

In order to stop the machine at the end of a music-sheet I make use of a small "pneumatic" or bellows 31 which when closed will elevate a rod 32 secured to its movable frame and projecting outwardly over the horizontal connecting member 24 of the yoke where it passes through an eye in the upper end of a small vertical rod 33 rising from the same about midway its length. Any upward movement of the rod 32 will elevate the vertical rod 33 and consequently the yoke, thereby raising and resetting the contact carrying bar 7 that was dropped to operate the machine. The pneumatic is actuated by means of an additional independent opening or perforation 34 placed at the end of the music roll after the last note perforation and communicating with said pneumatic by an independent pipe 35. This mechanism will stop the device as soon as each record has been played by breaking the contact in the "selector-circuit" as shown in dotted lines in Fig. 1 of the drawings.

From the above it will be seen that it will

not be possible (as it was heretofore) to play more than one tune or repeat any particular tune by simply turning off the current at the switch momentarily and then starting it again, because the instant the current is shut off the tracker-board is raised from the music-sheet causing the breaking of the "selector-circuit" and the selectors are all returned and reset to the normal position (see bars 7 and contact-shoes 12 in dotted lines Figs. 1 and 2).

What I claim as new is:—

1. A circuit former comprising suitable terminal plates, a bridging-contact suspended above said plates and comprising a foot pivoted at one side of its center of gravity whereby one end of said foot slides a short distance on its respective plate in making contact.

2. A circuit former comprising suitable terminal plates, a gravity-actuated pivoted bar above said plates, a bridging-contact carried by said bar and comprising a foot pivoted at one side of its center of gravity whereby one end of said foot slides a short distance on its respective plate in making contact.

3. A circuit-former comprising a series of terminal-plates, a main terminal-plate adjacent the ends of the same, a bridging contact suspended above each terminal-plate and adapted to contact with its respective terminal-plate and said main terminal plate when released, and a device for resetting said contacts after the same have been released.

4. A circuit-former comprising a series of parallel terminal-plates, a separate main terminal-plate adjacent the ends of the same, a series of gravity actuated horizontal bars pivoted at one end above said parallel terminal-plates, a bridging contact carried by each bar, a device supporting the free ends of said bars, and means common to all of said bars for resetting the same after the latter has been released.

5. A circuit-former comprising a series of parallel terminal-plates, a separate main terminal-plate adjacent the ends of the same, a series of gravity actuated horizontal bars pivoted at one end above said parallel terminal-plates, a bridging contact carried by each bar, means for supporting the free end of each bar, and means common to all of said bars for resetting the same when released from said supporting means.

6. A circuit-former comprising a series of parallel terminal-plates, a separate main terminal-plate adjacent the ends of the same, a series of gravity actuated horizontal bars pivoted at one end above said parallel terminal-plates, a bridging contact carried by each bar, a gravity-returnable trip for supporting the free ends of each of said bars, and a device common to all of said bars for resetting the same when released from said trips.

In witness whereof I have hereunto set my hand this 13th day of August, 1909.

EDGAR B. SHERMAN.

Witnesses:
E. K. LUNDY,
THOMAS J. HARPER.