

E. D. CARNEY.
 COIN CONTROLLED ACTUATING MECHANISM FOR AUTOPNEUMATIC PIANOS.
 APPLICATION FILED JAN. 20, 1910.

974,355.

Patented Nov. 1, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

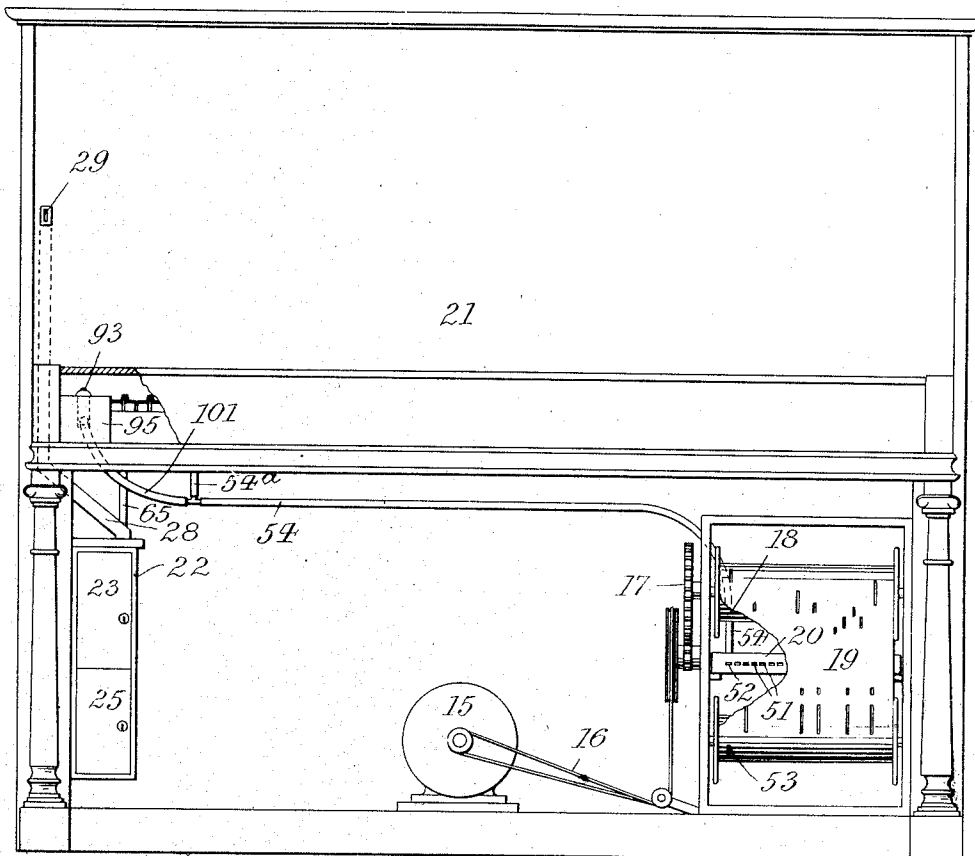
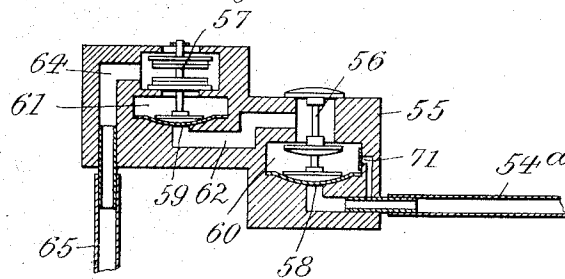


Fig. 9.



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 Edward Schorr.
 W. R. Schuck.

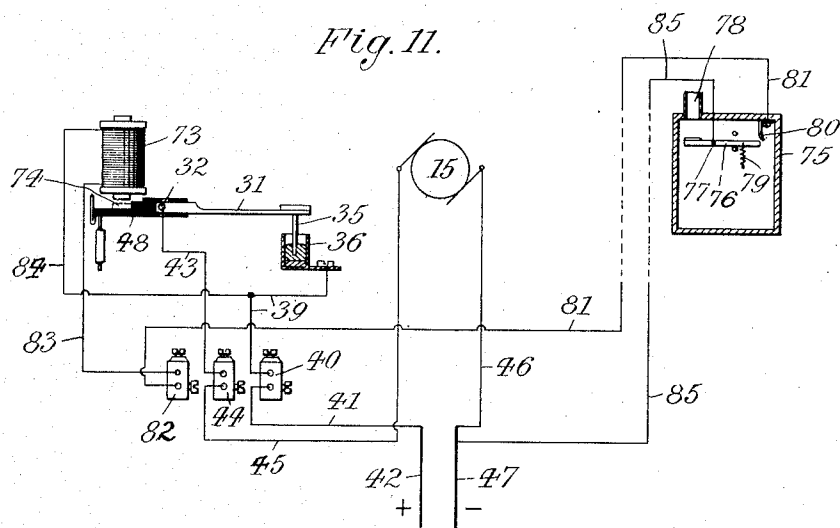
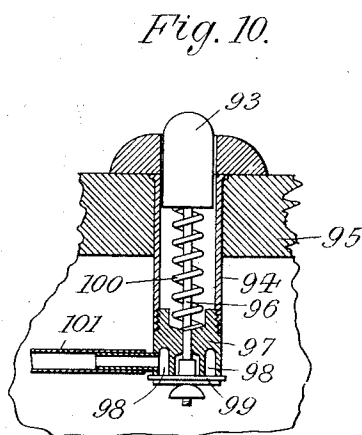
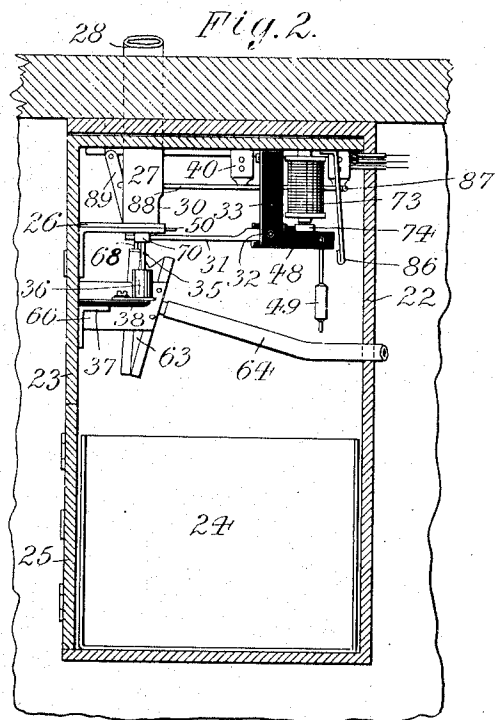
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Witnesses:
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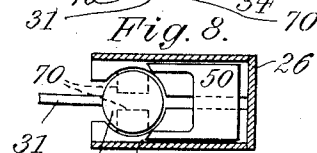
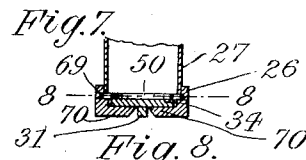
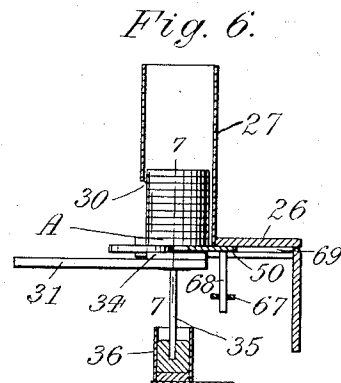
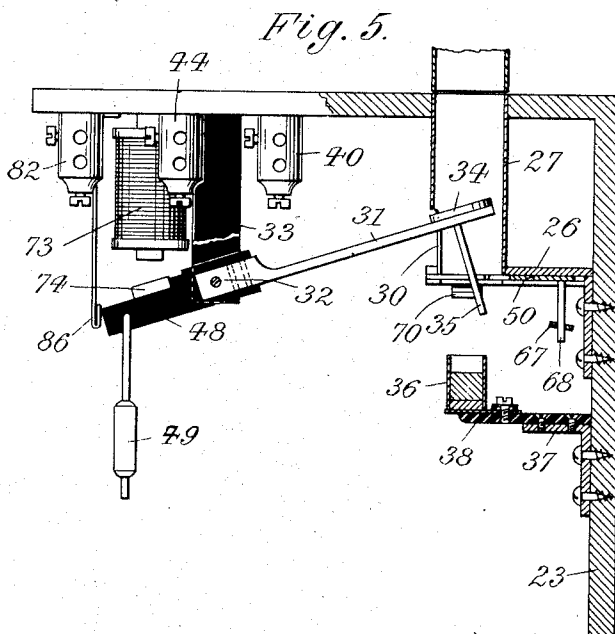
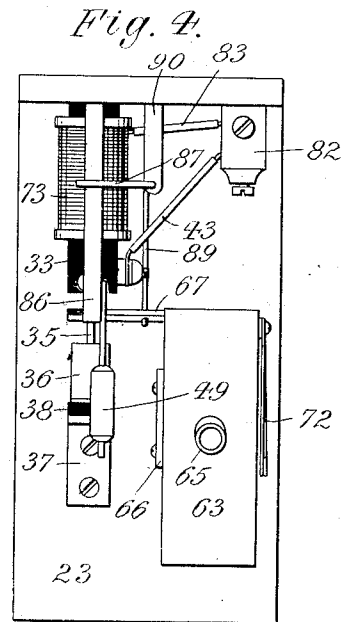
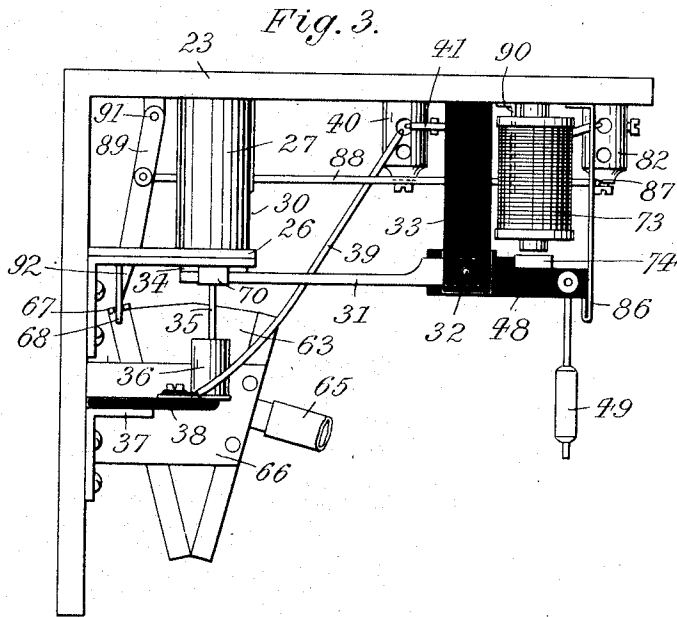
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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COIN-CONTROLLED ACTUATING MECHANISM FOR AUTOPNEUMATIC PIANOS.

974,355.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed January 20, 1910. Serial No. 538,976.

To all whom it may concern:

Be it known that I, EDWARD D. CARNEY, a citizen of the United States, residing at St. Johnsville, Montgomery county, State of New York, have invented new and useful Improvements in Coin-Controlled Actuating Mechanism for Autopneumatic Pianos, of which the following is a specification.

This invention relates to a coin-controlled actuating mechanism for autopneumatic pianos and similar instruments, which is so constructed that a number of coins may be introduced into the coin slot in rapid succession, the first of said coins starting the instrument, while the following coins will be temporarily stored in a magazine. From this magazine the coins are successively discharged in an automatic manner to restart the piano after the music piece actuated by the discharge of the previous coin has been completely rendered. Thus, if a person inserts ten coins into the coin slot, ten pieces of music will be successively played, one piece starting immediately after the previous air has been finished, so that the instrument may render, continuously, several pieces of music without requiring repeated attention.

The invention also comprises means which permit the instrument to be started from distant points, so that it is not necessary for the operator to step up to the instrument, if it is desired to have one or more pieces of music rendered.

In the accompanying drawings: Figure 1 is a front view, partly broken away, of an autopneumatic piano embodying my invention; Fig. 2 a vertical section through the box containing the coin-controlled actuating mechanism and the coin receptacle; Fig. 3 a right hand side view of said mechanism; Fig. 4 an end view thereof, with some of the parts omitted; Fig. 5 a left hand side view of the mechanism, showing the parts in a different position; Fig. 6 a vertical section through the partly charged coin magazine and cooperating parts; Fig. 7 a vertical section on line 7-7, Fig. 6; Fig. 8 a horizontal section on line 8-8, Fig. 7; Fig. 9 a section through the pneumatic valves; Fig. 10 a detail of the coin-releasing button and cooperating parts, and Fig. 11 a wiring diagram.

The numeral 15 indicates an electromotor which, by rope 16 and gearing 17, drives

the feed roller 18 of a perforated music sheet 19, traveling over tracker-bar 20. All these parts are preferably arranged within the case 21 of an autopneumatic piano, the drawing showing them to occupy the space below the key-board thereof.

In order to start the electromotor by the insertion of a coin and to arrest said motor after the piece of music has been played, the following construction has been devised: Within a box 22 is slidably mounted a frame 23 which carries the actuating mechanism and may be withdrawn from the box for inspection, repairs, etc. Below frame 23 there is received within box 22 a removable coin-receptacle 24, access to which may be gained by a door 25.

To frame 23 is secured by a bracket 26, a tubular coin magazine 27 communicating at its upper end with a chute 28 which receives the coins through a suitably located slot 29. Magazine 27 is provided near its bottom with a lateral slot 30 accommodating a lever 31 which is pivoted at 32 to a pair of insulating arms 33 depending from frame 23. To the free end of lever 31 is secured a disk or support 34 and a pin 35, the disk being received within magazine 27 and constituting a movable bottom therefor. Pin 35 is adapted to enter a mercury cup 36 secured to a bracket 37 by an insulating piece 38. Cup 36 is, by wire 39, binding post 40 and wire 41, connected to a first live wire 42, while pivot 32 of lever 31 is, by wire 43, post 44, and wire 45, connected to electromotor 15, the latter being, in turn, by a wire 46, connected to a second live wire 47. Wires 42 and 47 are connected to a suitable source of electricity, (not shown).

Lever 31 is provided with an insulating tail 48 from which a weight 49 is suspended that holds disk 34 in its raised position, (Fig. 5), when the piano is out of action. As soon as a coin A, is introduced through slot 29 and chute 28, it will strike disk 34 and settle flatwise thereon, thereby overcoming weight 49 and tilting lever 31 into the position shown in Figs. 2, 3 and 4.

By the descent of lever 31, a circuit will be closed, the current flowing from wire 42 through wire 41, post 40, wire 39, mercury cup 36, pin 35, lever 31, wire 43, post 44, wire 45, electromotor 15 and wire 46, to wire 47. In this way the electromotor will be started to play the desired music piece, after

the completion of which an ejector 50 throws the coin off disk 34, so that weight 49 is free to raise lever 31 into the position shown in Fig. 5, thereby opening the circuit and arresting motor 15.

The means for operating ejector 50 are as follows: In addition to the usual piano hammer actuating ducts 51, the tracker-bar 20 is provided with a duct 52 adapted to register with a perforation 53 of tune sheet 19 arranged at the end of each individual music piece contained on said sheet. Duct 52, by tubes 54, 54^a, communicates with a valve box 55 containing a primary valve 56 and a secondary valve 57 of suitable construction. As shown, these valves rest upon diaphragms 58, 59 contained in vacuum chambers 60, 61, respectively. When perforation 53 registers with duct 52, air will be admitted below diaphragm 58, so that the latter will raise valve 56, thereby admitting air through duct 62 to the lower side of diaphragm 59, which, in turn, will raise valve 57. In this way a bellows 63 will be connected to vacuum chamber 61 through a duct 64 and tube 65, thus collapsing the bellows. This collapse is utilized for actuating coin ejector 50, in the following manner: The fixed board of bellows 63 is secured to frame 23 by a bracket 66, while its movable board carries a laterally projecting plate 67. The latter is slotted for the accommodation of a pin 68 depending from ejector 50. This ejector slidably engages a corresponding guide-way 69 of bracket 26, hereinabove referred to. This bracket has a pair of depending angular arms 70 which constitute stops for disk 34 when the latter is loaded by a coin. The proportions of the parts are such, that after the descent of disk 34, ejector 50 becomes aligned with the coin deposited upon disk 34, so that upon the advance of said ejector, owing to the collapse of bellows 63, the coin will be thrown off disk 34 to be received within coin receptacle 24. After perforation 53 has passed duct 52, a vacuum will be created below diaphragm 58 through bleed hole 71, so that valves 56, 57 will descend, thereby again admitting air into bellows 63, as will be readily understood. Spring 72 will thus be free to expand the bellows and retract ejector 50, lever 31 simultaneously returning to its raised position, so that by the insertion of a further coin, the operation will be repeated. If a number of coins are dropped into slot 29, in rapid succession, they will become stacked upon disk 34, as illustrated in Fig. 6. After the first piece of music has been played, a perforation 53, in passing over duct 52, will cause the collapse of bellows 63, thereby advancing ejector 50. The latter will thus push outward the bottom coin resting upon disk 34, while the superposed coins will be retained within magazine 27. After the retraction of ejector 50, the re-

duced stack will descend upon disk 34 to cause the instrument to play the next piece of music contained on sheet 19, which operation will be repeated until the supply of coins stored in magazine 27 has become exhausted.

For starting the instrument from a distant point, an electromagnet 73 is secured to frame 23 which is adapted to influence an armature 74 secured to tail 48 of lever 31. Electromagnet 73 is in circuit with suitable current controlling means, such as a coin box or other device, the drawing showing a coin box 75 provided with a lever 76 fulcrumed at 77. One arm of this lever is arranged below a coin chute 78, while its other arm, influenced by a spring 79, is adapted to engage a contact 80. The latter is, by wire 81, binding post 82, and wire 83, connected to electromagnet 73, which is, in turn, by wire 84, connected to wire 39, while lever 76 is, by wire 85, connected to wire 47.

If a coin is inserted into chute 78, lever 76 will be tilted to engage contact 80 and close a circuit, the current flowing from wire 42, wire 41, post 40, wires 39, 84, electromagnet 73, wire 83, post 82, wire 81, contact 80, lever 76, and wire 85 to wire 47. In this way electromagnet 73 will be energized to attract armature 74, thereby lowering lever 31 and steeping pin 35 into mercury cup 36, so as to close the electromotor-circuit hereinabove described.

In order to retain lever 31 in its lowered position after the coin has dropped off lever 76, a spring-catch 86 is provided which is adapted to engage the lower side of tail 48. Catch 86 has the tendency to recede from the tail, but may be temporarily held in engagement therewith by the bent end 87 of a rod 88 pivoted to an arm 89 and guided within a hanger 90. Arm 89 is fulcrumed at 91 and engages with its tapering lower end 92, a corresponding perforation of plate 67. As prior to the rendition of a piece of music, bellows 63 is expanded, hook 87 draws catch 86 toward tail 48, so that after the rise of the latter, the catch, in slipping under tail 48, will maintain lever 31 in its lowered position. After the completion of the music piece, bellows 63 is collapsed, so that hook 87 will recede from catch 86, which, in turn, will liberate tail 48, so that pin 35 will be lifted out of cup 36, to arrest motor 15. Additional means are provided which permit the removal of the coin or coins resting upon disk 34, in order to immediately arrest the music and stop playing whenever necessary. These means consist of a push button 93 engaging a tubular sleeve 94, which is located at any suitable place, the drawing showing it inserted into the wooden block 95 flanking the bass keys of the piano. Button 93 is provided with a stem 96 which passes through a plug 97

screwed into sleeve 94. Plug 97 has an annular recess or vent 98 which is adapted to be closed by a valve disk 99 secured to the lower end of stem 96 and held in engagement with plug 97 by a spring 100 interposed between button 93 and said plug. Vent 98 communicates through a tube 101 with tubes 54, 54^a, so that by depressing button 93, air will be admitted below diaphragm 58, to collapse bellows 63 in the manner already described in connection with duct 52 and end perforation 53. In this way ejector 50 will be advanced to throw a coin off disk 34.

It will be seen that by the means described, any desired number of coins may be inserted into the coin slot in rapid succession, to consecutively start a corresponding number of airs, in a novel and efficient manner. The invention is particularly applicable to instruments used in public places of amusement, in which the pleasure seekers desire to have a number of music pieces rendered in immediate succession. In this way it is no longer necessary for the operator to step up to the instrument after each piece of music has been finished, but the coins may be introduced *en masse*, thus simplifying the operation and avoiding undesirable breaks between the rendition of successive airs. A further advantage connected with my improved actuating mechanism is that it readily permits the starting of the instrument from distant points, which is particularly desirable when the instruments are placed upon stages, platforms, or other, more or less, inaccessible places.

I claim;

1. A device of the character described, comprising a coin magazine having a lateral coin-egress slot and a guide beneath

said slot, a lever having a coin rest at the base of the magazine, an electric circuit controlled by the lever, and a reciprocative coin ejector engaging the guide and adapted to push a coin off the coin rest and out of the coin egress slot.

2. A device of the character described, comprising a coin magazine, an inclosed movable member which is adapted to simultaneously support a plurality of coins and to be held by said coins in its lowered position, means for raising said member upon liberation from said coins, a coin ejector, pneumatic means for actuating the same, an armature on the movable member, a coöperating electromagnet, means at a distance from the magazine for energizing said electro-magnet, and an electric circuit controlled by the movable member.

3. A device of the character described, comprising a coin magazine, an inclosed movable member which is adapted to simultaneously support a plurality of coins and to be held by said coins in its lowered position, means for raising said member upon liberation from said coins, a coin ejector, bellows for actuating the same, an armature on the movable member, a coöperating electromagnet, coin-controlled means at a distance from the magazine for energizing said electro-magnet, a spring-catch adapted to engage the movable member, a hook connected to the bellows and adapted to engage said catch, and an electric circuit controlled by the movable member.

Signed by me at St. Johnsville, N. Y., this 17th day of January, 1910.

EDWARD D. CARNEY.

Witnesses:

WALTER L. INGELHARDT,
N. D. INGELHARDT.