

W. D. WAMSLEY,  
 AUTOMATIC MUSICAL INSTRUMENT.  
 APPLICATION FILED DEC. 30, 1916.

1,275,509.

Patented Aug. 13, 1918.  
 2 SHEETS—SHEET 1.

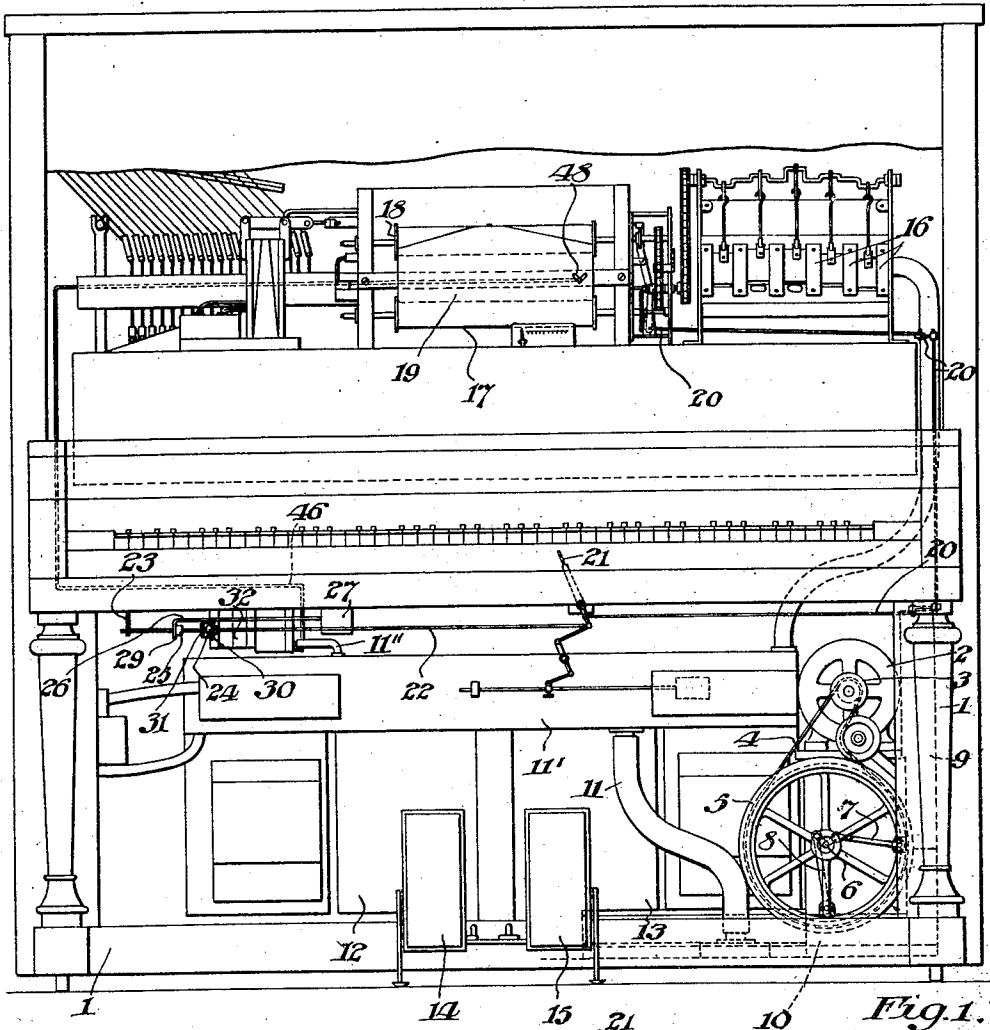


Fig. 1.

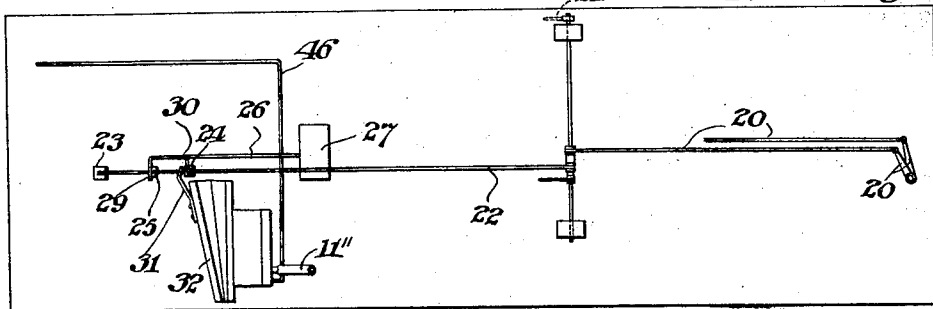


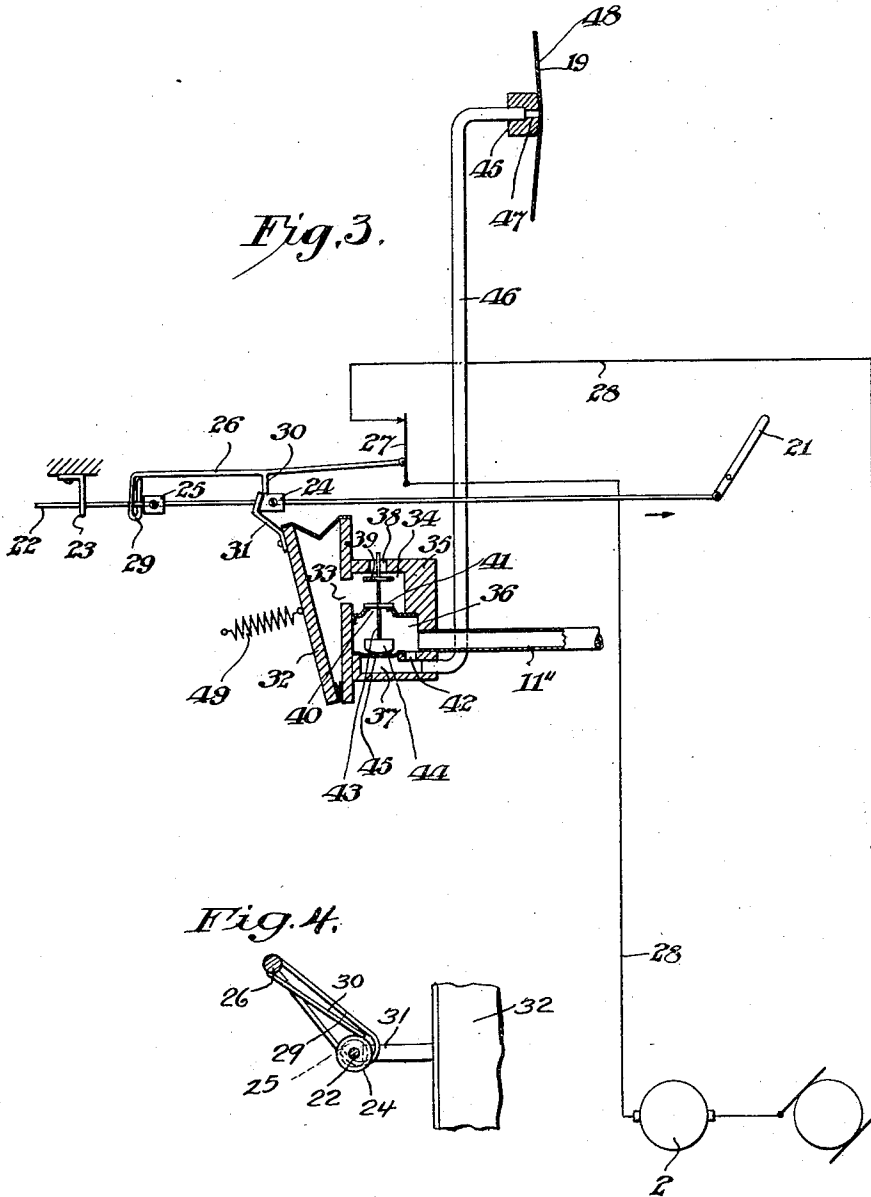
Fig. 2.

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# UNITED STATES PATENT OFFICE.

WAYNE D. WAMSLEY, OF LESTER, PENNSYLVANIA, ASSIGNOR TO LESTER PIANO COMPANY, A CORPORATION OF PENNSYLVANIA.

## AUTOMATIC MUSICAL INSTRUMENT.

1,275,509.

Specification of Letters Patent. Patented Aug. 13, 1918.

Application filed December 30, 1916. Serial No. 139,875.

*To all whom it may concern:*

Be it known that I, WAYNE D. WAMSLEY, a citizen of the United States, residing at Lester, Delaware county, Pennsylvania, have invented certain Improvements in Automatic Musical Instruments, of which the following is a specification.

This invention relates to automatic musical instruments, particularly pianos, which are pneumatically operated under control of a perforated music sheet, and the primary object of the invention is to effect the automatic reversal of the rolling mechanism when the sheet has been played through and to stop the operation when complete rerolling has been effected.

In the practice of my invention, in its preferred form, the usual mechanism for controlling the operations of the rolls which carry the perforated music sheet is connected with a pneumatic so as to be operated thereby through its connection with the atmosphere and the vacuum system under control of valves and the music sheet, the pneumatic being connected with a switch adapted for opening the circuit of the electric motor which may be used for operating the pumping apparatus by which the rolls are operated.

The characteristic features of my improvements will be more fully understood from the following description and the accompanying drawings of a piano embodying the same.

In the drawings, Figure 1 is a front elevation of a piano equipped with my improvements; Fig. 2 is a bottom plan view representing features of the same; Fig. 3 is a part sectional diagrammatic view of the invention; and Fig. 4 is a detailed view of parts shown at the left of Fig. 2.

The mechanism illustrated in the drawings comprises the piano 1 equipped, in a known manner, with an electric motor 2 provided with a pulley 3 which drives a belt 4, and with a wheel 5 driven by the belt and fixed on the crank shaft 6, which operates the connecting rods 7 and 8 for working the pumps 9 and 10 and exhausting the pneumatic system 11, the latter also being exhausted by the pumps 12 and 13 operated by the pedals 14 and 15.

The motor mechanism 16, for driving the rolls 17 and 18 which carry the music sheet 19, is positively connected with the respective rolls alternately by the usual mechanism

20 comprising the manually operated lever 21.

In accordance with my invention, in a preferred form thereof, a rod 22 is connected with the lever 21 and is movable longitudinally through its supporting bearing 23, the rod having the collars 24 and 25 fixed adjustably thereon. A rod 26 is connected at one end with a switch 27 in the circuit of the motor 2, is provided at the other end with a loop 29 surrounding the rod 22 in position to be engaged by the collar 25 to close the switch, and is further provided with the finger 30 in position to be engaged by the arm or lug 31 on the bellows 32, which is adapted to be collapsed to shift the rod 22 and reverse the roll operating mechanism by the engagement of the arm 31 with the collar 24, and to open the switch by subsequently engaging the finger 30 when the collar 24 has been removed therefrom.

The bellows 32 communicates by a port 33 with a chamber 34 of a box 35 containing the further chambers 36 and 37. The chamber 34 communicates with the atmosphere by the port 38 controlled by a valve 39, the chambers 34 and 36 communicate by a port 40 controlled by a valve 41, the chambers 36 and 37 communicate by a restricted port 42, and the valves 39 and 41 are carried by a rod 43 provided with a button 44 which is connected with a diaphragm 45 located between the chambers 36 and 37. The chamber 36 is connected with the vacuum chest 11' of the pneumatic system 11 by a conduit 11'' and the chamber 37 is connected with the tracker bar 45 by a conduit 46, the tracker bar being provided with the opening 47 over which runs the edge of the music sheet 19, the latter containing the aperture 48 adapted to register with such tracker bar opening when the sheet has been played through.

In operation, the parts are in the relation shown in Fig. 3, while playing. But when the aperture 48 of the music sheet 19 registers with the aperture 47 of the tracker bar, after the sheet has been played through, a rush of air through the exhausted conduit 46, into the chamber 37, lifts the diaphragm 45 and operates the rod 43, which causes the valve 39 to close the port 38 and the valve 41 to open the port 40. The bellows 32 is now exhausted (from the conduit 11'', through the chamber 36, port 40, chamber 34 and port 33) and collapses against the action

of the spring 49. The collapse of the bellows 32 shifts the rod 22 in the direction of the arrow, by the contact of the arm 31 with the collar 24 and the lever 21 is thereby reversed, making the rerolling connection between the motor 16 and the roll 18, in the usual manner. It will be understood that in this movement of the arm 31 it clears the finger 30, which stands on the collar 24, and the switch 27 remains closed, so that the motor 2 will continue to actuate the motor 16 through the vacuum system, and rerolling will be effected. During the rerolling operation, the sheet 19 covers the opening 47, the conduit 46 and the chamber 36 are exhausted through the port 42 and conduit 11", the valve 41 drops to close the port 40 and the valve 39 opens the port 38. The bellows 32 is thereby released, by the admission of air thereto, and opened by the spring 49, the arm 31 moving back from the collar 24 and past the finger 30, which now drops into position for engagement by the arm 31. When the rerolling has been effected, the end of the sheet 19 passes the aperture 47 in the tracker bar and the bellows 32 is again collapsed, as previously described, the arm 31 acting through the finger 30 on the rod 26 to open the switch 27 and break the circuit 28, thereby stopping the motor.

When it is desired to start the mechanism, the lever 21 is shifted back to the position shown in Fig. 3 and the consequent movement of the rod 22 causes the collar 25 to act on the loop 29 and close the switch 27, thereby restarting the mechanism.

Having described my invention, I claim:

1. In an automatic musical instrument, the combination of a music sheet, means for feeding and rerolling said music sheet, motor mechanism comprising an electric circuit containing a controlling device for operating said means, mechanism for connecting said motor mechanism alternately with said feeding and rerolling means, a pneumatic controlled by said music sheet, and mechanism operated by said pneumatic for operating said mechanism second named and said controlling device alternately.

2. In an automatic musical instrument, the combination of a music sheet, means for feeding and rerolling said music sheet, motor mechanism comprising a circuit having a controlling device for operating said means, clutching mechanism for connecting said motor mechanism alternately with said feeding and rerolling means, a pneumatic controlled by said music sheet, and means engaged and operated by said pneumatic for operating said clutching mechanism to effect rerolling and thereafter said controlling device to open said circuit.

3. In an automatic musical instrument, the combination of a music sheet, means for feeding and rerolling said music sheet, motor mechanism for operating said means and comprising a circuit containing switching mechanism, clutching mechanism for connecting said motor mechanism alternately with said feeding and rerolling means, and a pneumatic having a device which on one movement thereof engages and operates said clutching mechanism and on a second movement thereof engages and operates said switching mechanism.

4. In an automatic musical instrument, the combination of a music sheet, means for feeding and rerolling said music sheet, motor mechanism for operating said means and comprising a circuit containing switching mechanism, clutching mechanism for connecting said motor mechanism alternately with said feeding and rerolling means, and a pneumatic having a device for engaging and operating said clutching and switching mechanisms in succession, one of said last named mechanisms being held out of engagement with said device by the other during a movement of the latter.

5. In an automatic musical instrument, the combination of means for feeding and rerolling a music sheet, a pneumatic motor for operating said means, clutching mechanism for connecting said motor alternately with said feeding and rerolling means, means comprising an electric motor for operating said pneumatic motor, said electric motor having a circuit containing switching mechanism, and pneumatic means for operating said clutching and switching mechanisms, one of said mechanisms last named being held by the other out of operative connection with said pneumatic means during an operation of the latter.

6. In an automatic musical instrument, the combination of means for feeding and rerolling a music sheet, a pneumatic motor for operating said means, clutching mechanism for alternately connecting said motor with said feeding and rerolling means, means comprising an electric motor having a circuit containing a switch for operating said pneumatic motor, mechanism comprising a manually operated lever for simultaneously closing said switch and clutching said motor and feeding means, and means comprising a pneumatic controlled by said means second named and said music sheet for effecting the clutching of said pneumatic motor with said rerolling means and thereafter opening said switch.

In testimony whereof I have hereunto set my name this 28th day of December, 1916.

WAYNE D. WAMSLEY.