No. 862,704. PATENTED AUG. 6, 1907.

T. P. BROWN.

AUTOMATIC PLAYING ATTACHMENT FOR MUSICAL INSTRUMENTS.

APPLICATION FILED DEC. 26, 1903.

2 SHEETS—SHEET 1

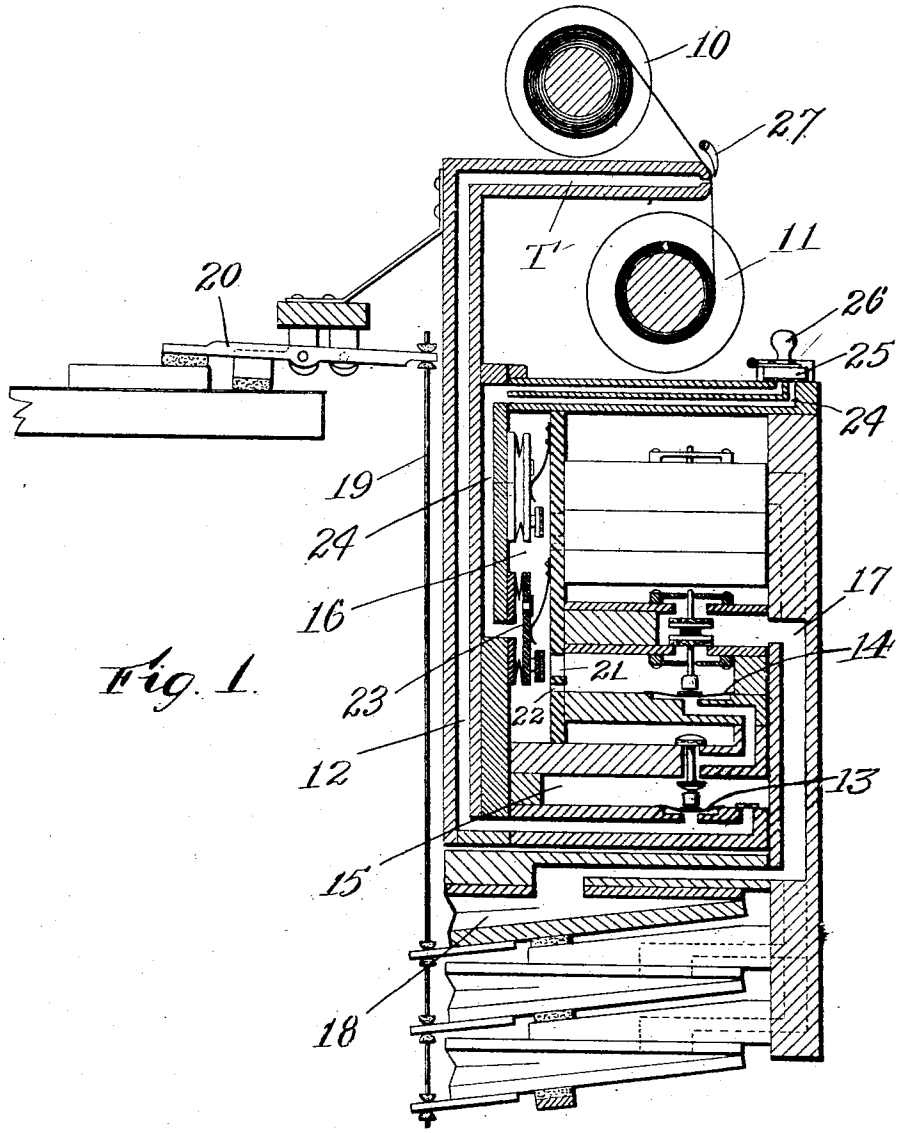

Fig. 1.

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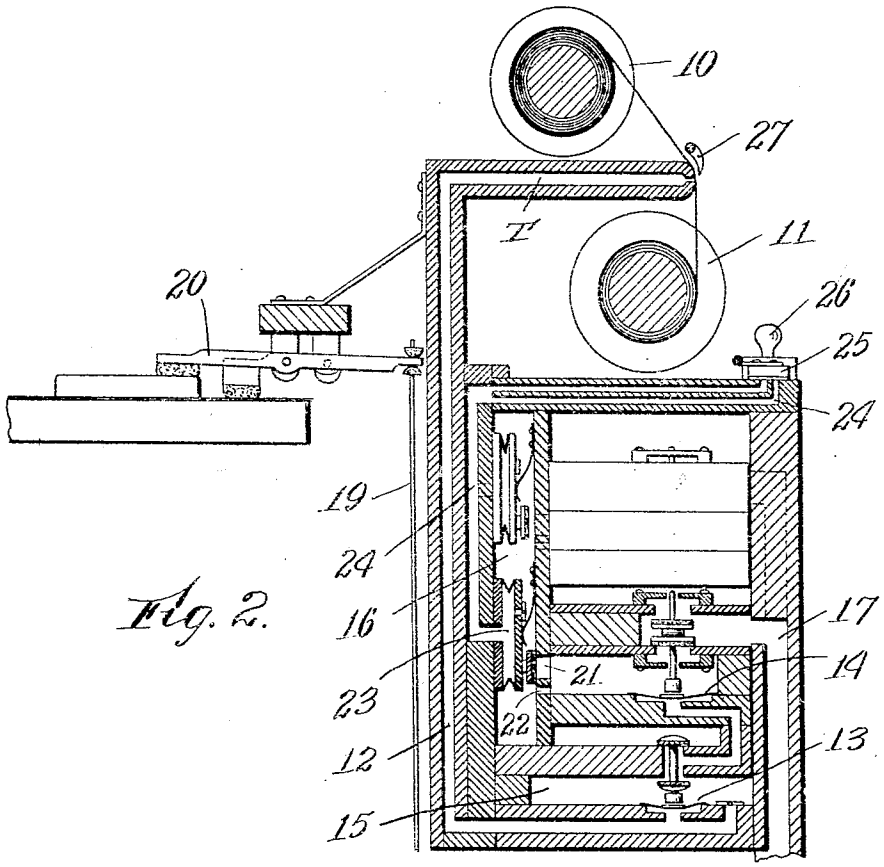

Fig. 2.

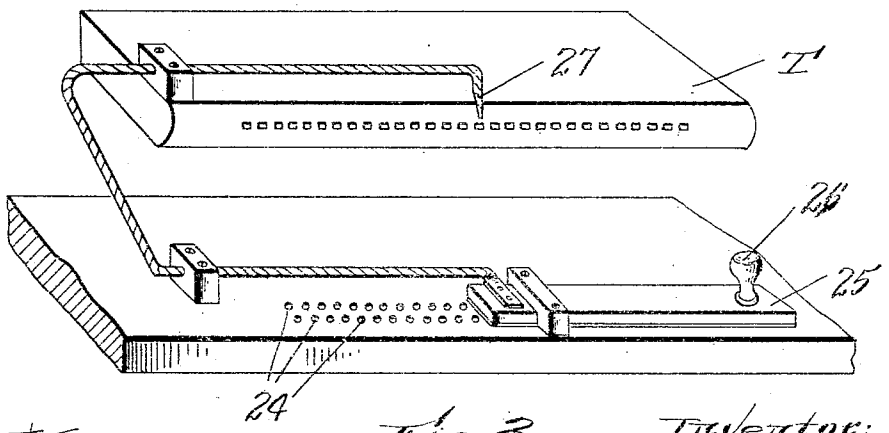

Fig. 3.

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UNITED STATES PATENT OFFICE.

THEODORE P. BROWN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO SIMPLEX PIANO PLAYER COMPANY, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

AUTOMATIC PLAYING ATTACHMENT FOR MUSICAL INSTRUMENTS.

No. 862,704. Specification of Letters Patent. Patented Aug. 6, 1907.

Application filed December 26, 1903. Serial No. 186,546.

To all whom it may concern:

Be it known that I, THEODORE P. BROWN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Automatic Playing Attachment for Musical Instruments, of which the following is a specification.

This invention relates to that class of self-playing attachments for musical instruments which are controlled by strips of perforated paper.

The especial object of this invention is to provide improved means for regulating the action of a self-playing attachment for musical instruments so that some of the notes played thereby will be struck lightly while the remainder of the notes will be struck more heavily.

Further objects and advantages of the invention will appear hereinafter.

In the accompanying two sheets of drawings, Figure 1 is a sectional view of sufficient parts of a self-playing attachment for musical instruments to illustrate the application of my invention thereto. Fig. 2 is a similar view showing the parts in slightly different positions, and Fig. 3 is a fragmentary view of the regulating valve or slide which controls the throttles for varying the operating pressure upon a portion of the key-actuating motors relative to the operating pressure upon the remainder of said motors.

In the use of that class of playing attachments to which this invention relates, it has been found desirable to provide means for controlling the instrument so that the notes of the air or melody may be more strongly accented than the notes of the accompaniment or bass. I have accomplished this result by providing means for varying the operating pressure upon a portion of the key-actuating pneumatic-motors relative to the operating pressure upon the remainder of said motors. I do this in the specific construction which I have devised by providing means for throttling the controlling passages leading to that portion of the key-actuating pneumatic-motors which it is desired to operate with diminished pressure. The throttling valves which I employ are controlled from a slide-board, so that the pressure may be subdued for a greater or less number of bass notes as desired.

Referring to the drawings and in detail, T designates a tracker-board. Coöperating with the tracker-board T are the music rolls 10 and 11 for winding a strip of perforated paper over the tracker-board. Leading from the tracker-board T are tracker-board channels 12, each of which runs to a primary pneumatic 13. Above the primary pneumatics 13 are the wind trunks or chambers 15 and 16, from which the air is exhausted by foot-controlled bellows in the ordinary manner. Each of the primary pneumatics 13 controls a small valve for admitting air tension to a valve-operating pneumatic 14, which valve-operating pneumatic 14 operates a puppet valve for connecting a passage 17 with the wind trunk 16. The passage 17 extends down to one of the striking pneumatics or key-actuating pneumatic-motors 18. Each of the key-actuating pneumatic-motors 18 operates a thrust-rod 19 connected to a striking lever 20.

The parts as thus far described will be recognized as corresponding with the parts ordinarily employed in self-playing attachments for musical instruments, and it is not thought necessary to herein specifically describe the details of the construction or operation of these parts.

Referring now to the specific form of controlling devices which I have employed for practicing my invention, it is to be observed that the admission of air tension from the wind-chest 16 to a passage 17 is normally permitted through a large port or opening 21 and a smaller port or opening 22. In the normal operation, both the ports 21 and 22 are open. Coöperating with the port 21 is a valve carried by a pneumatic 23. Each pneumatic 23 is held back in its normal or inoperative position by a flat spring, as shown. Leading from each of the throttle valve pneumatics 23 is a channel 24. The channels 24 terminate in a perforated board in front of the music rolls, and removably covering these perforations or channels 24 is a covering-slide or valve 25 which may be moved back and forth by a handle 26 to uncover a greater or less number of the passages 24 as may be desired. Extending from the covering-slide 25 is a pointer 27 which is extended up in position to coöperate with the tracker board to show what proportion of the notes represented by the perforations in the paper are to be struck softly.

Referring to Fig. 2, it will be seen that each of the throttling pneumatics 23 is provided with a small leak-passage so that when the channel 24 leading to a throttling pneumatic is closed the suction upon the movable section of the pneumatic will be balanced. When a channel 24 is opened by removing the covering-slide, air pressure will be admitted through said channel 24 to distend the throttling pneumatic 23 as shown in Fig. 2, thus shutting the larger port 21 so that air from a key-actuating pneumatic corresponding thereto can only be admitted through the restricted port 21, and, as a result thereof, the operating tension of such key-actuating pneumatic will be diminished relatively to that of the remainder of said pneumatics.

While I have illustrated and described a particular form in which I prefer to embody the invention, I am aware that many modifications may be made therein

by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to the particular construction shown, but

What I do claim is:—

1. In a music playing device, the combination with a series of key-actuating pneumatic motors and channels connected individually therewith, of a main wind-chest adapted to be under suction or pressure, a board having a series of channels therein arranged in alinement, one for each of said pneumatic motors, and means located in the main wind-chest for varying the degree of pressure in the channels connected with a portion of said motors relative to that in the remainder of said channels, and means on said board for controlling the operation of said varying means.

2. In a self-playing attachment for musical instruments, the combination of key-actuating pneumatic motors, passages connected therewith, a wind chest, a plurality of ports each connecting the wind chest with one of said passages, a valve for closing one of said ports to restrict the flow of air between the chest and the passage, a pneumatic for controlling said valve, and a slide valve for controlling the admission of atmospheric pressure to said pneumatic for closing the valve.

3. In a self-playing attachment for musical instruments, the combination of a series of key-actuating pneumatic motors, a plurality of passages, one communicating with each of said motors, a wind chest, a plurality of sets of ports connecting said wind chest with each of said passages, a valve for closing one of each of said sets of ports, and means for admitting pressure behind each of said valves for closing it, said means being adjustable with respect to the several wind chests whereby any number of said valves may be operated.

4. In a music playing device, the combination with key-actuating pneumatic motors, one for each note, of a channel connected with each motor, a valve for controlling each of said channels, a tracker-bar having channels, means controlled from each of the tracker-bar channels for operating one of said valves, a wind-chest communicating with all of said first named channels when their respective valves are open, a valve for restricting the passage of air between the wind-chest and each of said channels, a pneumatic for operating each of said valves, and a series of channels corresponding to the number of pneumatic motors for admitting air to said last named pneumatics to close the valves thereof.

5. In a music playing device, the combination with key-actuating pneumatic motors, one for each note, of a channel connected with each motor, a valve for controlling each of said channels, a tracker-bar having channels, means controlled from each of the tracker-bar channels for operating one of said valves, a wind-chest communicating with all of said first named channels when their respective valves are open, a valve for restricting the passage of air between the wind-chest and each of said channels, a pneumatic for operating each of said valves, a series of channels corresponding to the number of pneumatic motors for admitting air to said last named pneumatics to close the valves thereof, a port closing the last named channels and having lines of perforations in which said channels terminate, a slide valve adapted to move from one end of said lines of perforations to the other and close all of said perforations between the end of the valve and the opposite end of the series of perforations, a handle on said valve for operating it, and a pointer connected with said valve and movable along the tracker-bar to indicate the tracker-bar channel corresponding to the last one of the channels in said port closed by the slide valve.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

THEODORE P. BROWN.

Witnesses:
J. ELMER HALL,
PHILIP W. SOUTHGATE.