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ACCENTING DEVICE FOR MECHANICAL MUSICAL INSTRUMENTS.

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1,214,943. Patented Feb. 6, 1917.

Fig. 1.

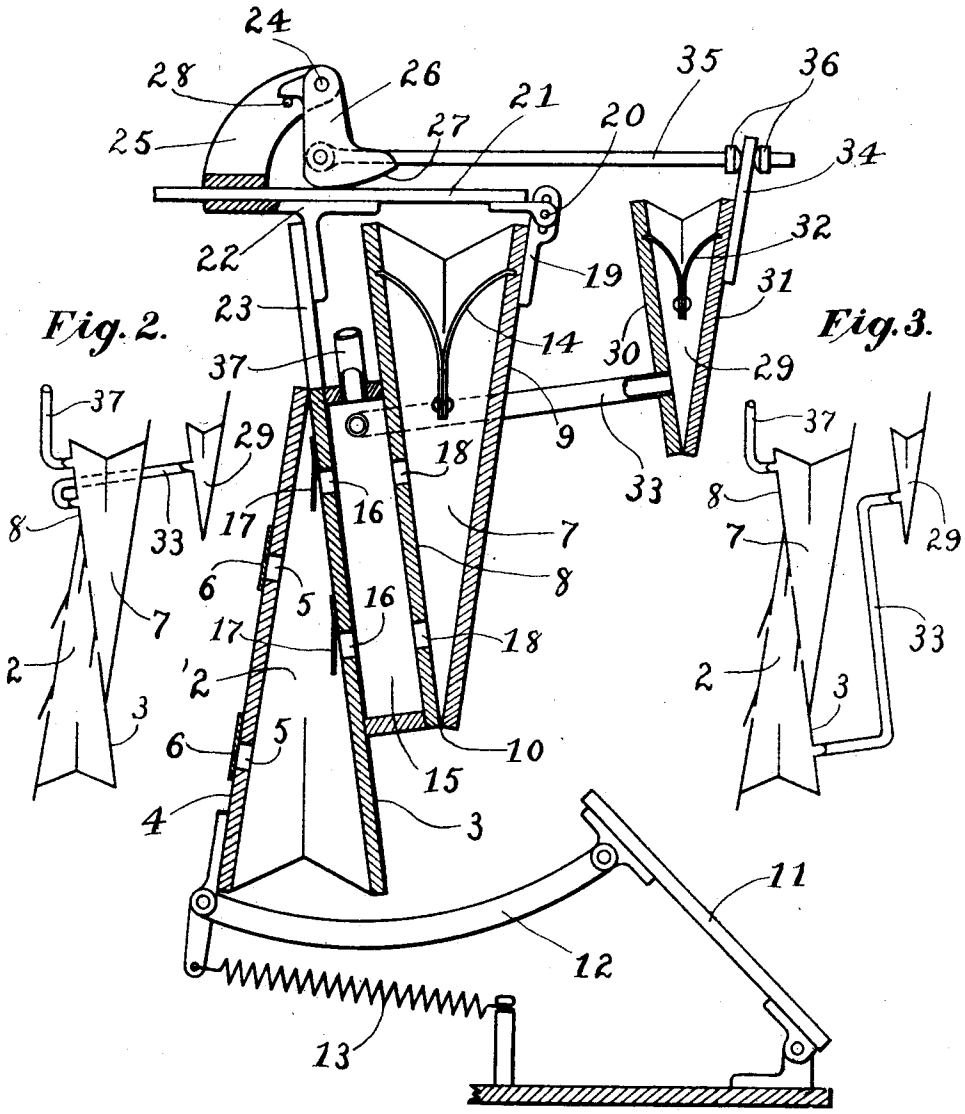

Fig. 2.

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

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ACCENTING DEVICE FOR MECHANICAL MUSICAL INSTRUMENTS.

1,214,943. Specification of Letters Patent. Patented Feb. 6, 1917.

Application filed November 6, 1913. Serial No. 799,473.

To all whom it may concern:

Be it known that I, JAMES O'CONNOR, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Accenting Devices for Mechanical Musical Instruments, of which the following is a specification.

This invention relates to accenting devices for mechanical musical instruments and has for its object to provide a device of the class specified, simple in construction, automatic in operation and quickly responsive in action.

With these ends in view, my improvements comprise features illustrated in their preferred embodiment in the drawings accompanying this specification, wherein Figure 1 is a sectional elevation of so much of a player piano construction as will suffice to illustrate my improvements. Fig. 2 is a diagrammatic sectional elevation similar to Fig. 1, illustrating a modification of said improvements. Fig. 3 is a view similar to that of Fig. 2, illustrating a further modification of my improvements. Figs. 2 and 3 are to a smaller scale than that of Fig. 1.

Before describing the invention in detail, I desire to have it understood that the invention is not limited to the particular construction and arrangement of parts which I have illustrated and shall hereinafter describe, and that various changes may be made in the mechanism shown without departing from the spirit or scope of the invention, and that the phraseology which I employ is for the purpose of description and not of limitation.

Referring now particularly to Fig. 1, therein is provided the usual air pump 2 illustrated in the form of the well known bellows, having a fixed wall 3 and a hinged oscillating wall 4. Said wall 4 is provided with the usual ports 5, 5 having on the outside thereof flap valves 6, 6.

Movable wall 4 of air pump 2 may be oscillated by the usual pedal 11 connected to said wall 4 by link 12. Movable wall 4 may be urged toward fixed wall 3 by means of pull spring 13. Adjacent to said air pump 2 is an equalizing reservoir 7 having fixed wall 8 and a movable wall 9 hinged at 10 to fixed wall 8, in the usual manner. Movable wall 9 may be urged away from fixed wall 8 by means of the usual spring 14.

Between fixed wall 3 of the air pump and fixed wall 8 of the equalizing reservoir is the usual wind chest 15. This wind chest communicates with air pump 2 by means of ports 16, 16 having the usual flap valves 17, 17 on the air pump side thereof and said wind chest communicates with the equalizing reservoir 7 by means of ports 18, 18. Pipe 37 of said wind chest 15 may communicate with the operative mechanism of a player piano.

Fixed to the free end of movable wall 9 of the equalizing reservoir is slotted bracket 19, connected by pin 20 with slide 21 lying approximately at right angles to said wall 9. Said slide 21 rests upon and is supported by bracket 22 upstanding from extension 23 of fixed wall 3 of the air pump. Pivoted at 24 to arm 25 upstanding from bracket 22 is swinging arm 26 having a cam shaped lower edge 27 for engagement with slide 21. Said swinging arm is efficient, when moved in clockwise direction, for clamping slide 21 against bracket 22 and thereby restraining the movement of said slide and movable wall 9 of equalizing reservoir 7. Swinging arm 26 is stopped in its anti-clockwise movement by pin 28 in arm 25.

For actuating said arm 26 for automatically locking slide 21 when wall 4 of the air pump is moved suddenly to the left, I provide actuating pneumatic 29 having the usual fixed wall 30 and movable wall 31, normally held apart by spring 32. Said actuating pneumatic is connected with wind chest 15 by pipe 33, and movable wall 31 has its outreaching extension 34 connected with swinging arm 26 by rod 35. Said rod penetrates extension 34 and is constrained to movement therewith by the usual nuts or collars 36.

In the modifications of Figs. 2 and 3 I have omitted the wind chest and laid the respective fixed walls of the air pump and equalizing reservoir against one another. In Fig. 2 pipe 33 from actuating pneumatic 29 connects directly with the equalizing reservoir and in Fig. 3 said pipe connects directly with the air pump. While Figs. 2 and 3 illustrate two modified arrangements,

it will be obvious to those skilled in the art that other modifications may be made within the scope of my improvements.

The operation of my improved device is as follows: Power being applied to pedal 11, wall 4 of the air pump is oscillated back and forth, thereby exhausting the air from wind chest 15 or from equalizing reservoir 7 or both. The respective sizes, and tensions of the springs of reservoir 7 and actuating pneumatic 29 being properly proportioned, the normal oscillation of wall 4 will produce no material movement of wall 31 of the actuating pneumatic. But, if pedal 11 be suddenly depressed and the air pump quickly operated, actuating pneumatic 29 will be automatically actuated by said air pump and caused to collapse, whereby the cam face of arm 26 will be thrown sharply against slide 21, locking that slide to bracket 22, thereby stopping the movement of wall 9 and restraining the operation of the equalizing reservoir. By this means a sharp and sudden exhaustion of the air from within pipe 37 and the mechanism with which it is connected will be produced. Applied to the usual construction of pneumatic player pianos, said exhaustion will result in an accenting of the notes then being played.

I claim:

1. A pneumatic player for musical instruments including in combination an air pump, an equalizing reservoir communicating therewith, an actuating pneumatic communicating with said air pump and governed thereby, and means actuated by said actuating pneumatic for restraining the operation of said equalizing reservoir.

2. A pneumatic player for musical instruments including in combination an air pump, an equalizing reservoir communicating therewith, said equalizing reservoir having a movable wall, an actuating pneumatic communicating with said air pump and governed thereby, and means actuated by said actuating pneumatic for restraining the movement of said movable wall.

3. A pneumatic player for musical instruments including in combination an air pump, an equalizing reservoir communicating therewith, an actuating pneumatic communicating with said air pump, and cam means actuated by said actuating pneumatic for restraining the movement of said movable wall.

4. A pneumatic player for musical instruments including in combination an air pump, an equalizing reservoir communicating therewith, said equalizing reservoir having a movable wall, a slide connected with said movable wall, and means controlled by said air pump for locking said slide against movement.

5. A pneumatic player for musical instruments including in combination an air pump, an equalizing reservoir communicating therewith, said equalizing reservoir having a movable wall, a slide connected with said movable wall, an actuating pneumatic communicating with said air pump, and means actuated by said actuating pneumatic for locking said slide against movement.

6. A pneumatic player for musical instruments including in combination an air pump, an equalizing reservoir communicating therewith, said equalizing reservoir having a movable wall, a slide connected with said movable wall, an actuating pneumatic communicating with said air pump, and cam means actuated by said actuating pneumatic for restraining the movement of said movable wall.

7. A pneumatic player for musical instruments including in combination a wind chest, an air pump and an equalizing reservoir communicating therewith, an actuating pneumatic communicating with said wind chest and governed by said air pump, and means actuated by said actuating pneumatic for restraining the operation of said equalizing reservoir.

8. A pneumatic player for musical instruments including in combination a wind chest, an air pump and an equalizing reservoir communicating therewith, said equalizing reservoir having a movable wall, an actuating pneumatic communicating with said wind chest and governed by said air pump, and means actuated by said actuating pneumatic for restraining the movement of said movable wall.

9. A pneumatic player for musical instruments including in combination an air pump, an equalizing reservoir communicating therewith, an actuating pneumatic communicating with said air pump, and means actuated by said actuating pneumatic for at one time restraining the operation of said equalizing reservoir and at another time permitting the normal operation thereof, the operation of said actuating pneumatic being automatically governed by said air pump.

10. A pneumatic player for musical instruments including in combination an air pump, an equalizing reservoir communicating therewith, said reservoir having a movable wall, an actuating pneumatic communicating with said air pump, and means actuated by said actuating pneumatic for at one time restraining the operation of said movable wall and at another time permitting the normal operation thereof, the operation of said actuating pneumatic being automatically governed by said air pump.

11. An accenting device for player pianos comprising main bellows, equalizing bellows for equalizing the vacuum tension in the pneumatic system, an air duct connecting the main bellows and the equalizing bellows,

and accenting means attached wholly to the exterior of the equalizing bellows for temporarily effecting a substantial arresting of the operation of said equalizing bellows.

12. An accenting device for player pianos comprising main bellows, equalizing bellows for equalizing the vacuum tension in the pneumatic system, an air duct connecting the main bellows and the equalizing bellows, accenting means attached wholly to the exterior of the equalizing bellows for temporarily effecting a substantial arresting of the operation of said equalizing bellows, and means whereby the equalizing bellows may be connected with the striker-pneumatic wind chest.

Signed at New York, in the county of New York and State of New York, this 30th day of October 1913, before two subscribing witnesses.

JAMES O'CONNOR.

Witnesses:
CHAS. W. LA RUE,
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