No. 780,862. PATENTED JAN. 24, 1905.

J. A. CAMERON.

PLAYING ATTACHMENT FOR MUSICAL INSTRUMENTS.

APPLICATION FILED MAR. 9, 1903.

2 SHEETS—SHEET 1.

Fig. 1.

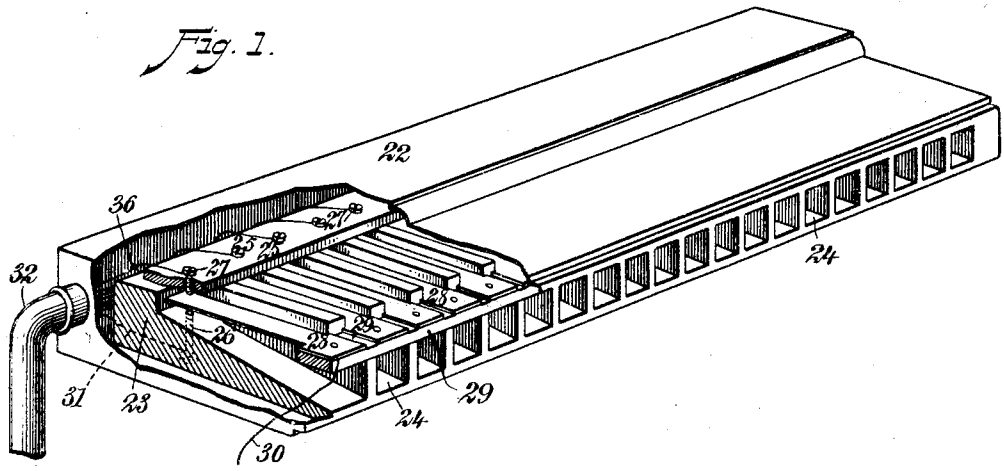


Fig. 2.

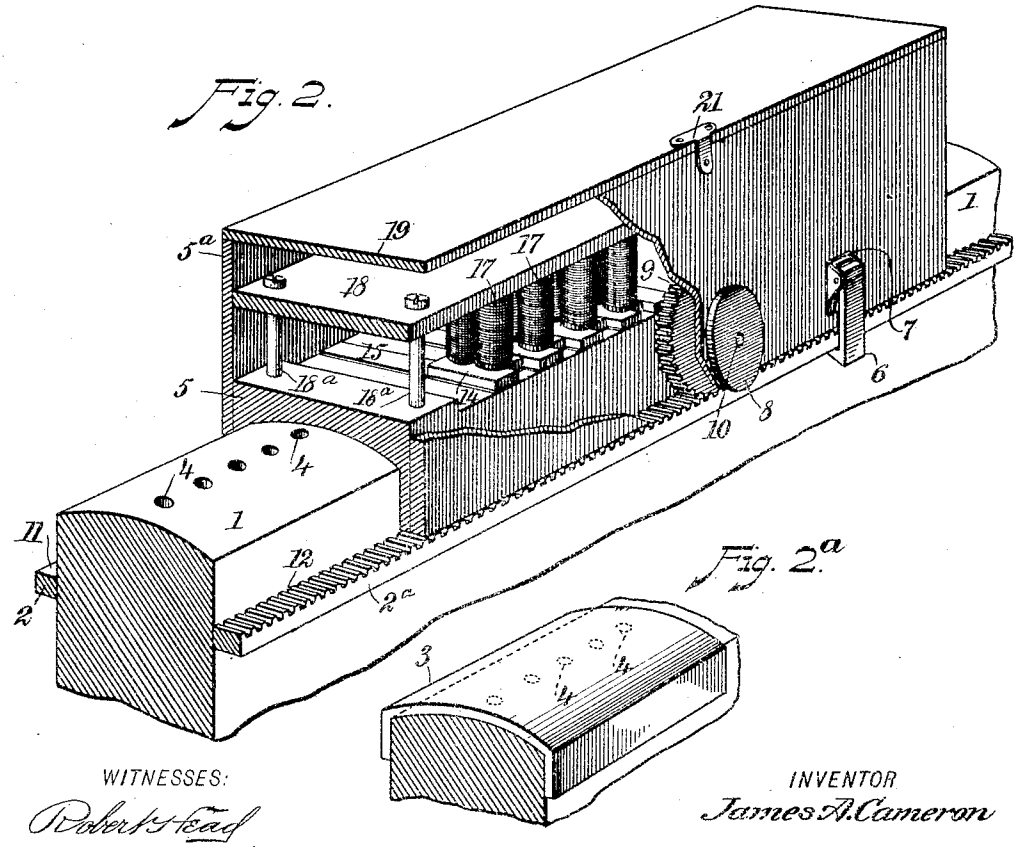


Fig. 2a

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2 SHEETS—SHEET 2.

Fig. 3.

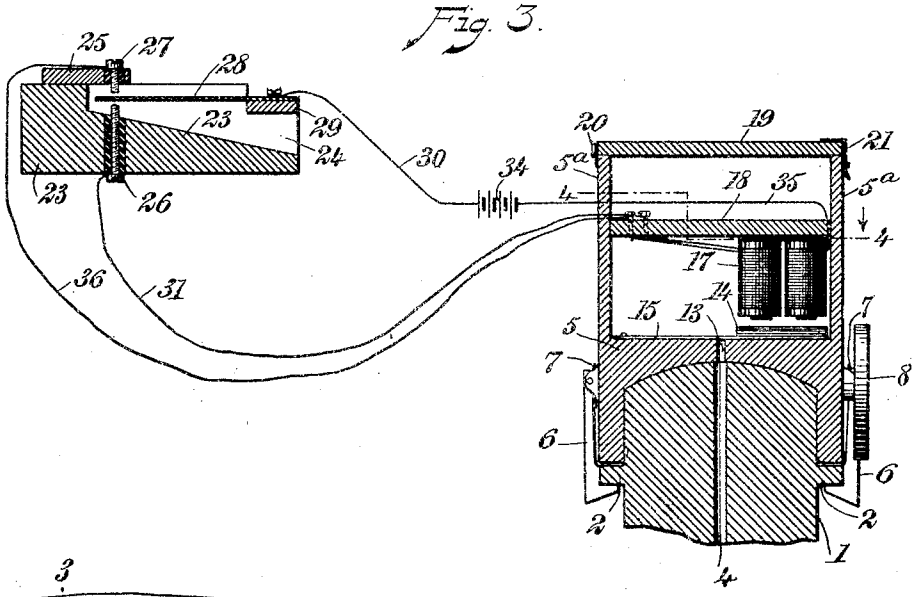
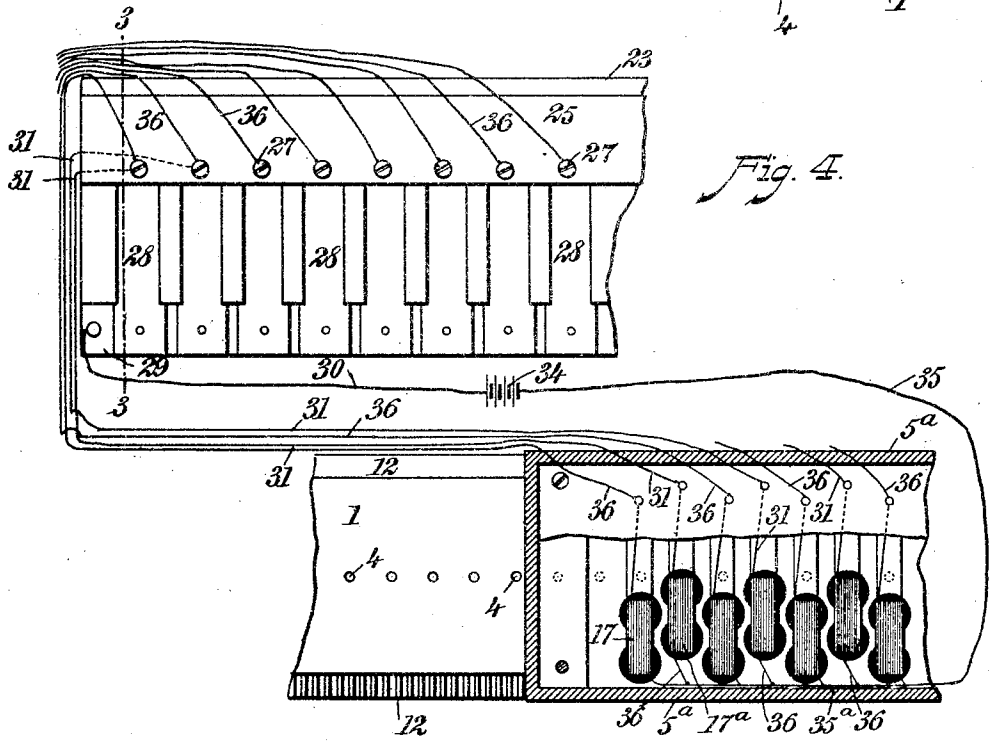


Fig. 4.



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No. 780,862. Patented January 24, 1905.

UNITED STATES PATENT OFFICE.

JAMES A. CAMERON, OF NEW YORK, N. Y.

PLAYING ATTACHMENT FOR MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 780,862, dated January 24, 1905.

Application filed March 9, 1903. Serial No. 146,945.

To all whom it may concern:

Be it known that I, JAMES A. CAMERON, a subject of the King of Great Britain, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Playing Attachment for Musical Instruments, of which the following is a specification of my preferred way of applying the same.

My invention relates to playing attachments for musical instruments, my object being to produce an attachment which can be connected with an automatically-playing instrument in such a manner that the player is not dependent upon any controlling device, such as a perforated music-sheet, and whereby a person even without the ability to play on the keys in the usual manner can control the playing of the proper notes by means of a mouthpiece somewhat resembling an ordinary mouth-harmonica.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view, partly broken away, of the mouthpiece. Fig. 2 is a fragmentary perspective view showing the tracker and a part of the electric mechanism for governing the flow of air through the same into the pneumatic musical instrument. Fig. 2ª is a perspective view showing the rubber cap applied for closing the channels in the tracker. Fig. 3 is a section upon the line 3 3 of Fig. 4 looking toward the right of the drawing. Fig. 4 is a fragmentary plan view showing the arrangement of the wiring, the magnets, and the valves operated by said magnets.

The tracker is shown at 1 and is provided with longitudinal side rails 2 2ª and a plurality of holes 4, representing the different notes. Slidably mounted upon the tracker is a frame 5, provided with walls 5ª and with pendent hooks 6, pivotally mounted thereupon and normally forced into engagement with the rails 2 by means of the leaf-springs 7. A rubber cap 3 may be employed to cover the holes 4 not covered by the frame 5. A hand-wheel 8 is connected with a pinion 9 by means of a pivotal stem 10, so that the pinion may be rotated by merely turning the hand-wheel 8. The upper face 11 of the rail 2 is smooth, whereas the face 12 of the rail 2ª is provided with teeth which are engaged by the teeth of the pinion 9. The frame 5 is centrally provided with holes 13, which are free to register with the holes 4 of the tracker. A number of armatures 14 are mounted upon the valves 15, which are adapted to open and close the holes 4 as the armatures are drawn upward or released. A plurality of magnets 17 17ª are disposed in a staggered relation for the purpose of enabling them to be grouped together, as shown in Fig. 4, each magnet being placed over one of the armatures. These magnets are supported on a plate 18, which is mounted, by means of spacing members 18ª, within the frame 5. The frame is further provided with a lid 19, hinged at 20, and provided with a fastening 21, whereby the inner works of the frame are made readily accessible to the musician.

The mouthpiece is shown more particularly in Fig. 1. An outer casing 22, in which is mounted a plate 23, provided with a series of substantially wedge-shaped passages 24, disposed parallel with each other somewhat after the manner of the mouthpiece of a harmonica. A flat bar 25 is mounted upon the plate 23. A plurality of insulated contact-screws 26 project through the plate 23, as indicated more particularly in Fig. 3. Insulated contact-screws 27 are likewise projected through the flat bar 25. A plurality of spring-contact members 28, each being adapted to be actuated by the breath of the player, are mounted upon a metallic bar 29, which forms a multiple connection between the same and the wire 30, which is a common return. A plurality of wires 31 are connected separately with the several contact-screws 26 and also with the magnets 17. Similarly an equal number of wires 36 are connected with the contact-screws 27 and with the magnets 17ª, which are intermediate of the magnets 17. The wire 30 is connected with a battery 34, from which a main wire 35 and parallel wires 35ª lead to the several magnets 17 17ª, being connected through these magnets with the several wires 31 and 36.

The frame 5, as shown, covers a relatively small portion of the tracker 1 and may be moved longitudinally upon the same, so as to cover a predetermined range of notes. By turning the hand-wheel 8 to the right or to the left, as the case may be, the frame may be so moved as to cause the musical instrument to play in a higher or a lower key, as desired. For instance, if it is desired to play a piece in a higher octave, all that is necessary is to move the frame 5 such a distance to the right as will represent twelve apertures upon the tracker. The holes 4, otherwise uncovered by the device, should preferably be closed by placing caps 3 upon the exposed portions of the tracker.

The apparatus being ready for use, the musician grasps the mouthpiece 22, and by alternately blowing and drawing in his breath through the passages 24 he causes the spring-tongues 28 to bend upwardly or downwardly, as the case may be, thereby engaging the contact members 27 or 26. As it is desirable to have the indrawing of the breath change the sound being produced by the musical instrument, the wire 31, with which the spring-tongue 28 makes engagement upon the withdrawal of the breath, is connected with a different magnet to the one with which the wire 36 is connected. The circuit through the wire 36 is closed by blowing the breath, so as to cause the spring-tongue 28 to engage the contact 27. The result is that the holes 4 of the tracker are opened in the order corresponding to the notes represented or desired in the mouthpiece.

It should be understood, of course, that the musical instrument proper—for instance, an organ using a perforated ribbon of paper as a pneumatic piano-playing attachment—plays in the usual manner, the device above described merely taking the place of the paper and serving the purpose of controlling the inflow of air through the tracker by the individuality of the player. I do not limit myself, however, to the use of pneumatic musical instruments or playing attachments, as obviously the principle can be applied to musical instruments of other kinds.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a playing attachment for musical instruments, the combination of a tracker provided with apertures, a frame mounted upon said tracker and free to move relatively thereto, said frame being provided with holes free to register with divers of said apertures, mechanism for opening and closing said holes, and means for moving said frame relatively to said tracker.

2. In a playing attachment for musical instruments, the combination of a tracker provided with apertures for admitting air, a frame mounted upon said tracker and provided with mechanism for governing the inflow of air through said apertures, and manually-controlled mechanism for shifting said frame from one position to another upon said tracker, for the purpose of producing independent sounds of different pitch.

3. In a playing attachment for musical instruments, the combination of a tracker provided with apertures for admitting air, a frame mounted upon said tracker and provided with mechanism for governing the inflow of air through said apertures, and rack-and-pinion mechanism for shifting the position of said frame relatively to said tracker.

4. In a playing attachment for musical instruments, the combination of a tracker provided with apertures for admitting air, a frame slidably mounted upon said tracker, and detachable therefrom, a rack disposed adjacent to the path of said frame, and a manually-operated pinion mounted upon said frame and engaging said rack.

5. In a playing attachment for musical instruments, the combination of a tracker provided with apertures for admitting air, a frame movably mounted upon said tracker and provided with mechanism for governing the inflow of air through said apertures, and fastening mechanism for securing said frame upon a predetermined portion of said tracker.

6. In a playing attachment for musical instruments, the combination of a tracker provided with apertures for admitting air, and a detachable frame provided with mechanism for governing the inflow of air through said apertures.

7. In a playing attachment for musical instruments, the combination of a tracker provided with apertures for admitting air, a frame detachably mounted upon said tracker and provided with hooks for securing said frame in position thereupon, and means controllable at will for moving said frame relatively to said tracker.

8. An attachment for controlling the passage of air through apertures of the tracker on an attachment for playing musical instruments comprising a frame slidably mounted upon said tracker and detachable therefrom, said frame being provided with apertures registering with those of said tracker, a mouthpiece having air-passages and tongues, and separate connections between said frame and said tongues, said tongues being arranged in said air-passages of said mouthpiece and controlled by the breath of the player.

9. In a playing attachment for musical instruments, the combination of a member provided with valves for controlling a tracker, separate electromagnets for actuating said valves, a mouthpiece provided with channels and with contact members, and wires connecting said contacts with said electromagnets for energizing the same.

10. In a playing attachment for musical instruments, the combination of a frame pro-

vided with holes, spring-valves provided with armatures and free to open and close said holes, electromagnets for separately energizing said armatures and thereby actuating said spring-valves for the purpose of opening and closing said holes, and a mouthpiece provided with pneumatically-actuated contact mechanism for controlling said electromagnets.

11. A playing attachment for musical instruments, comprising a frame provided with separate valves and with a portion for fitting upon a tracker-board, electric mechanism for actuating said separate valves, a mouthpiece provided with contact members, said contact members being controllable pneumatically, and wires connecting said contact members with said electric mechanism for actuating said separate valves.

12. In a playing attachment for musical instruments, the combination of a frame provided with a portion for fitting upon a tracker-board, and also provided with pneumatic valves for controlling a musical instrument by aid of said tracker-board, electromagnets for actuating said pneumatic valves, a mouthpiece provided with contacts actuated by the player's breath, and wires connecting said contacts with said electromagnets for energizing the latter.

13. In a playing attachment for musical instruments, the combination of a member provided with a surface to be temporarily fitted upon a tracker-board, a plurality of separate valves for governing the flow of air through said tracker-board, electrically-operated mechanism for actuating said separate valves, a mouthpiece provided with pneumatically-operated contacts, and wires connecting said contacts with said electrically-operated mechanism.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAS. A. CAMERON.

Witnesses:
WALTON HARRISON,
EVERARD BOLTON MARSHALL.