

No. 841,113.

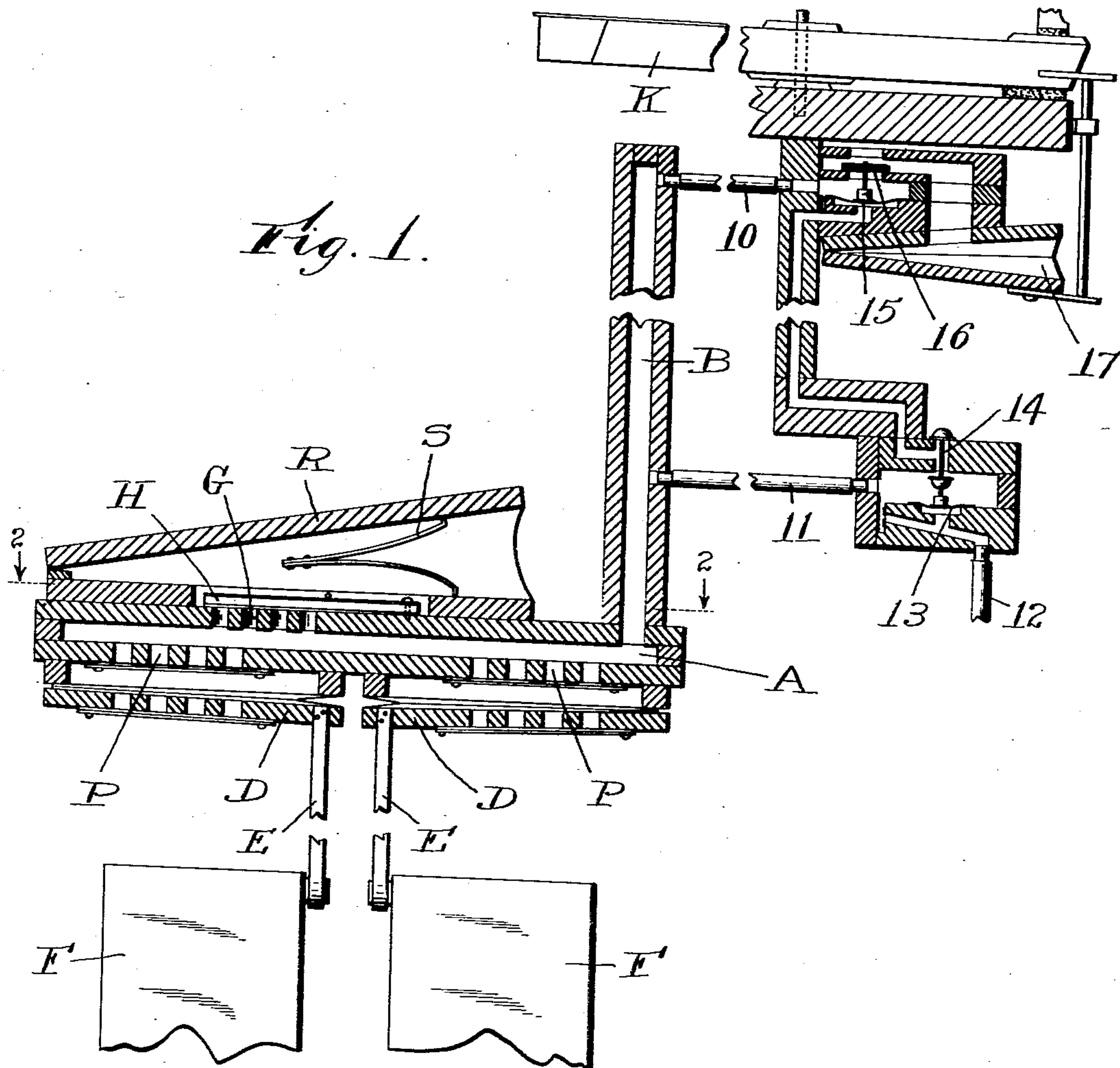
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T. P. BROWN.

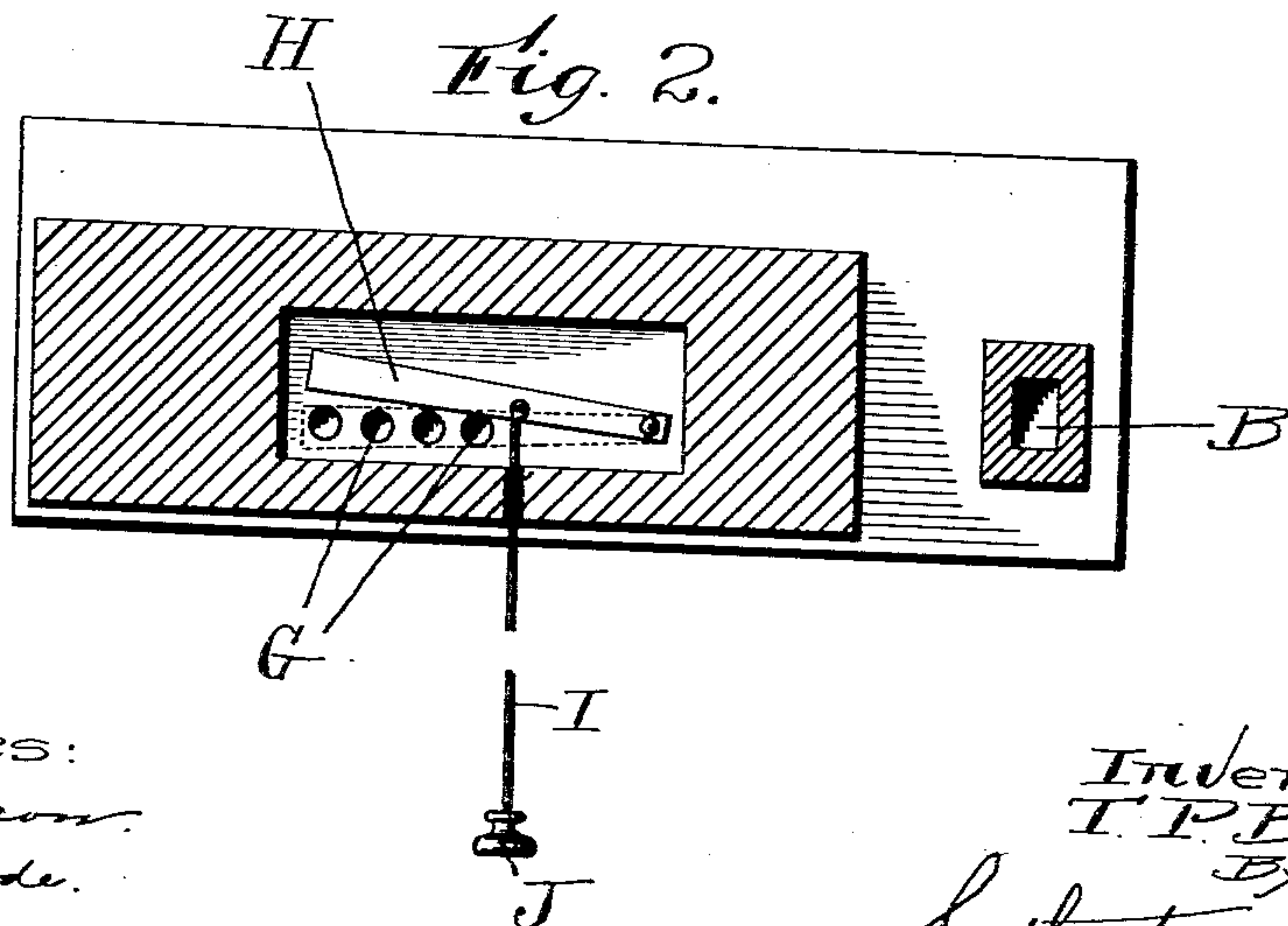
MODULATING ATTACHMENT FOR MUSICAL INSTRUMENTS.

APPLICATION FILED OCT. 10, 1902.

*Fig. 1.*



*Fig. 2.*



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# UNITED STATES PATENT OFFICE.

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## MODULATING ATTACHMENT FOR MUSICAL INSTRUMENTS.

No. 841,113.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed October 10, 1902. Serial No. 126,654.

*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 Modulating Attachment for Musical Instruments, of which the following is a specification.

This invention relates to an improved construction for operating pneumatic musical instruments or playing attachments for musical instruments.

The especial object of this invention is to provide a simple and inexpensive construction whereby different parts of the music being played may be differently accented or modulated, as desired.

To these ends this invention consists of a bellows with a modulating attachment applied thereto, as hereinafter described and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a sectional view illustrating the application of this invention to bellows which are connected to operate a piano-playing attachment, and Fig. 2 is a transverse sectional view taken on the line 2 2 of Fig. 1.

In the use of pneumatic musical instruments, and especially in the use of automatic piano-players or similar instrumentalities, different passages of music may be differently accented by varying the bellows-pressure. In the use of the ordinary instruments of this class, however, it has not heretofore been possible to produce sharply-accented individual chords or tones—that is to say, in the use of ordinary instruments of this class the accent or effect will depend upon the air-tension carried in the wind-chest or other air-space controlled by the foot-operated bellows, so that it is possible by working the feet more rapidly to produce higher air-tensions and emphasize or play certain passages of music more loudly than others. In order to produce such effects, however, the accented or loud playing will be carried through several tones, so that an entire measure, or, perhaps, several measures of the music, will necessarily be played with the high-tension or loud effect, due to working the feet more rapidly. In the ordinary constructions, moreover, it has not heretofore been feasible to accent particular

chords or notes without also carrying the accented effect on to the subsequent tones.

The especial object of the present invention is to provide a bellows controlling or modulating attachment by means of which it is possible to accent or give any desired expression to particular tones or chords without carrying such accent either into the preceding or subsequent tones. This is accomplished by providing a comparatively small wind-chest from which the air is exhausted by any of the ordinary forms of foot-controlled bellows, and in which the air-tension is equalized and kept constant by the ordinary spring regulating the bellows during the normal operation, while in order to produce the desired accented effects means are provided for cutting off or rendering the regulating-bellows inoperative. When said regulating-bellows are thus thrown out of action, the foot-controlled bellows will then have direct control of the playing attachment. By means of this construction the regulating-bellows may be thrown out, and a single quick impulse or action by the feet of the user will produce a direct or accented effect which need not be prolonged for more than one note or chord, as the regulating-bellows can then be immediately thrown in to restore the normal air-tension. The means for cutting out the regulating-bellows may, if desired, be set to throttle the passage between the wind-chest and regulating-bellows to any desired extent, so that any desired partially accented or modulated effects may be produced.

Referring to the accompanying drawings for a detail description of an apparatus embodying this invention, A designates a wind-chest or air-cell, which is connected to the playing devices through the ordinary stack or chimney B.

In the present instance I have illustrated a form of pneumatic action which I have employed in practice in automatic piano-players; but it is to be understood that the action or construction of pneumatic devices operated from the stack B may be of widely different classes from that herein illustrated. As shown, the stack B is connected to a pipe 11, which opens above a primary pneumatic 13, controlled by a tracker-board pipe 12. The primary pneumatic 13 controls a valve 14 for admitting air-pressure under a valve-op-



erating pneumatic 15. The stack B is connected to a pipe 10, which opens above the valve-operating pneumatic 15. Controlled by the valve-operating pneumatic 15 is a valve 16, controlling the passage opening into the striking or main pneumatic 17, which may be connected to act upon a piano-key K or other device to be operated.

On its lower side the wind-chest A is provided with valve-controlled ports P, opening into foot-controlled bellows. The movable section D of the foot-controlled bellows is connected by links E to the ordinary pedals F.

On its upper side the wind-chest A is provided with ports G, which open into a regulating-bellows. The movable section R of the regulating-bellows is normally forced up by a spring S so as to maintain a uniform tension in the wind-chest A. As shown most clearly in Fig. 2, a swinging valve or arm H is arranged to throttle or cover the ports G, so as to cut off the regulating-bellows from the wind-chest when a direct tension from the foot-controlled bellows is desired. The valve H can be controlled by a pull-rod I and stop J, which may be located in any convenient position.

In the use of an apparatus as thus constructed in order to produce an accented or loud effect the valve H may be turned to close the ports G, so that a direct impulse from the foot-controlled bellows will have control of the playing devices, and after such accented effect the normal tension can be immediately restored by reopening the ports G. By operating the parts in this manner individual notes or chords can be accented without affecting other parts of the music, or modulating effects may be produced by throttling the ports G to any desired extent.

I am aware that numerous changes may be made in practicing my invention by those who are skilled in the art and that my construction may be combined with playing attachments or other devices of widely different form from that herein shown. I do not

wish, therefore, to be limited to the construction I have herein illustrated and described, but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus of the class described, the combination of an air passage or chamber of fixed capacity, a regulating-bellows, pneumatic playing devices, and foot-controlled bellows, all independently connected to the air-chamber, and means for shutting off all connection between the air-chamber and the regulating-bellows so that the foot-controlled bellows will have direct, unmodified control of the playing devices.

2. In an apparatus of the class described, the combination of a wind-chest, foot-controlled bellows, a single regulating-bellows, and pneumatic playing devices, all independently connected with the wind-chest, and means for regulating and entirely shutting off the connection between the wind-chest and the regulating-bellows, so that the action of the foot-controlled bellows may be modulated to produce differently-accented effects.

3. In an automatic playing attachment for musical instruments, the combination of a main or striking pneumatic, a valve-controlling pneumatic, a primary pneumatic, a wind-chest of constant capacity, and a stack connected to operate the pneumatics, a pair of foot-controlled bellows for exhausting air from the wind-chest, a spring-pressed regulating-bellows independently connected with the wind-chest, and means for shutting off the connection between the wind-chest and regulating-bellows, so that the foot-controlled bellows will have direct, unmodified control of the playing devices.

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

THEODORE P. BROWN.

Witnesses:

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LOUIS W. SOUTHGATE.