

L. B. DOMAN.
PNEUMATIC SELF PLAYING MUSICAL INSTRUMENT.
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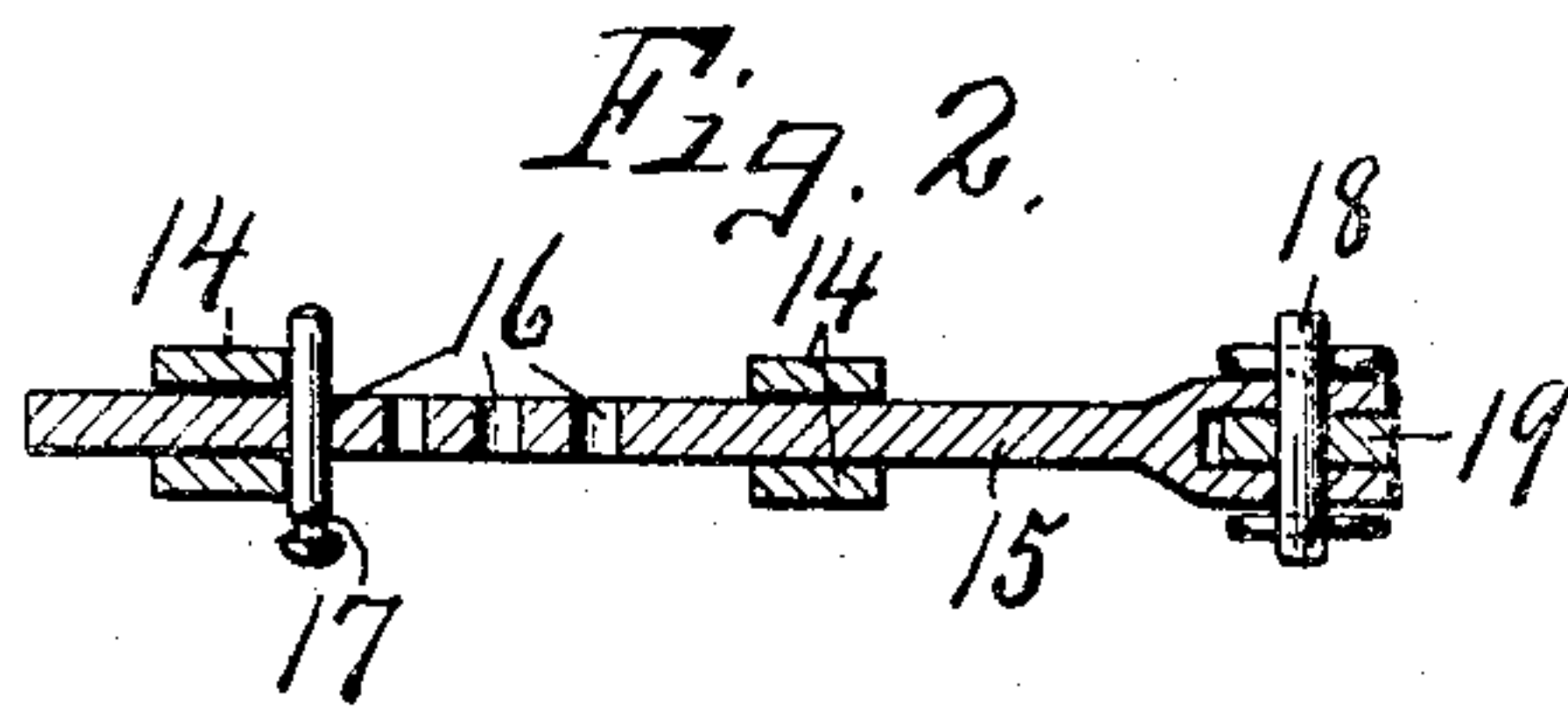
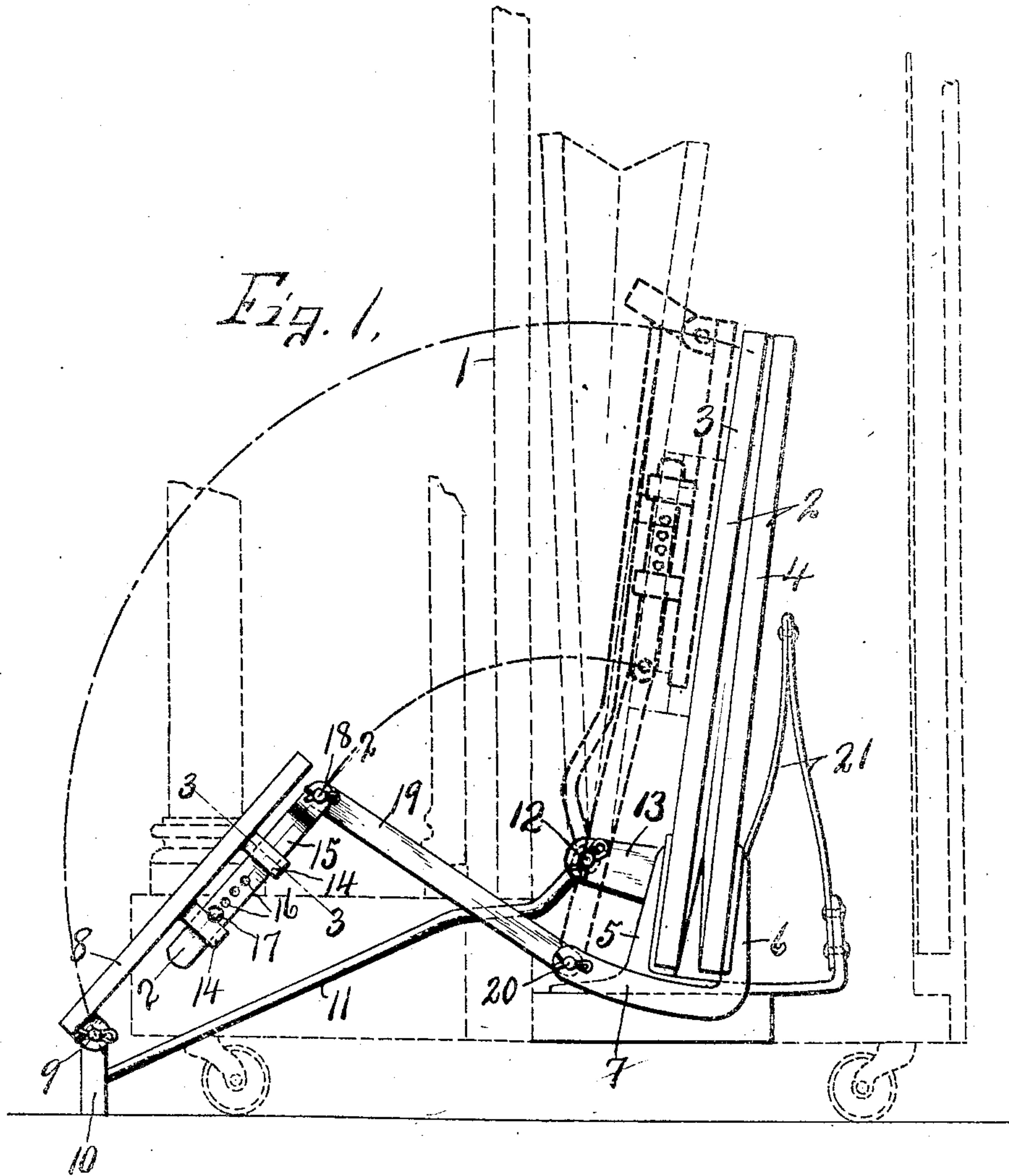
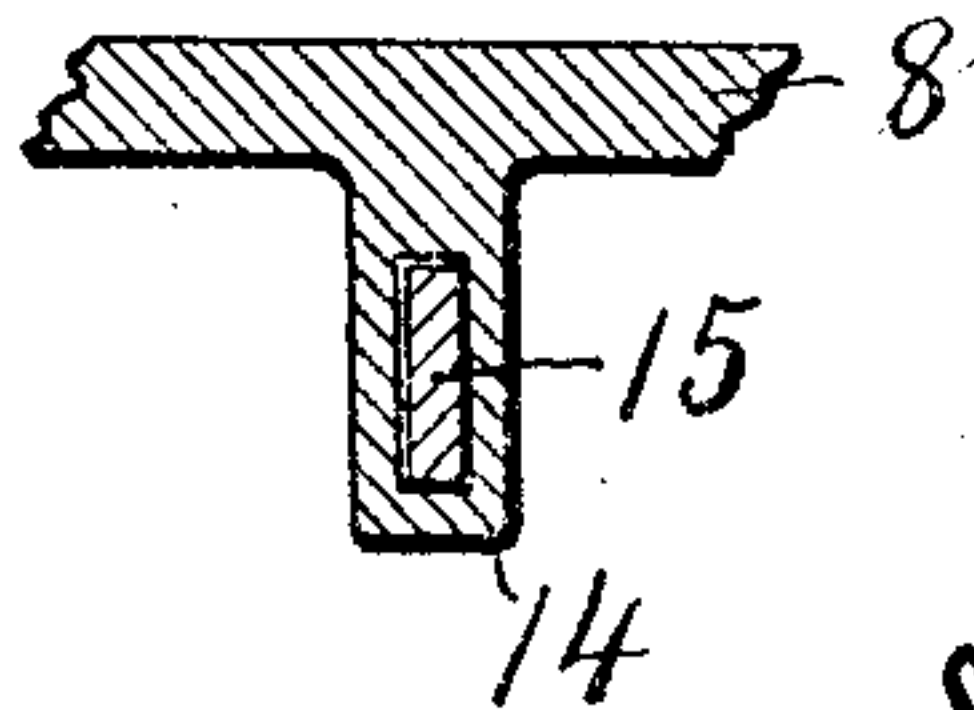


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

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PNEUMATIC SELF-PLAYING MUSICAL INSTRUMENT.

No. 912,940.

Specification of Letters Patent.

Patented Feb. 16, 1909.

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To all whom it may concern:

Be it known that I, LEWIS B. DOMAN, of Elbridge, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Pneumatic Self-Playing Musical Instruments, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in pneumatic self playing musical instruments and refers more particularly to the pedal action for operating the main bellows or exhaust bellows, somewhat similar to that set forth in my pending application No. 329,692, filed August 8, 1906. In instruments of this character it is customary to provide two pedals which are connected by links or other suitable means to corresponding exhaust bellows by which a partial vacuum may be maintained in the windchest and other pneumatics of the instrument. The links connecting the pedals to the bellows are usually pivoted to the under side of the pedal and suitably connected to the movable side of the exhaust bellows, and the main object of my present invention is to enable the connection between the pedal and bellows to be adjusted to variable points between the heel and toe of the pedal, for the purpose of producing variations in pressure required to operate the pedals according to the desire of the operator.

In some instances heavy pressure and consequent slow pedal movement may be desired by some operators, while other operators would prefer a lighter pedal pressure with a more rapid action of the pedals, and my present invention is designed to provide for such adjustment of the connection between the pedal and bellows, as will produce the desired effect.

Other more specific objects and uses will be hereinafter set forth.

In the drawings—Figure 1 is a side elevation of my improved pedal action shown as operatively connected to an exhaust bellows of a self-playing instrument, the equalizer and portions of the instrument being shown in dotted lines to more clearly bring out the relative arrangement of the parts of my invention as associated with the instrument. Figs. 2 and 3 are enlarged sectional views taken respectively on lines 2—2 and 3—3, Fig. 1.

In order to more clearly demonstrate the

practicability of my invention, I have shown by dotted lines, a portion of piano case —1— in the base of which is placed a suitable exhaust bellows —2—, usually in an upright position, and comprises a fixed member —3— and a movable member —4— hinged to the upper end of the fixed member —3—, and having its lower end movable to and from said fixed member at the rear thereof. The fixed member —3— is secured at its lower end to a bracket —5— on the base of the piano case, while the lower end of the movable member —4— is provided with a bracket —6—, having an arm —7— projecting forwardly under the lower edge of the fixed member —3—.

A pedal —8— is shown as fulcrumed at —9— at its forward end upon a suitable support —10—, which is rigidly secured to an upwardly folding arm —11—, the latter being pivoted at its rear end at —12— to a forwardly extending arm —13—, on the bracket —5—. The pedal —8— is normally held in an upward and rearwardly inclined position, as shown in Fig —1—, by a suitable retracting means hereinafter described, which also serves to retract the movable side of the bellows —2—; said pedal —8— being provided on its under side with suitable guides or loops —14— rigid thereon and spaced some distance apart from each other between the heel and toe of the pedal. An adjusting bar —15— is movable lengthwise in the guide loops —14—, and is provided with a series of apertures —16—, either of which is adapted to receive a locking-pin or adjustable abutment —17—, the latter adapted to engage or abut against the rear side of the front guide —14—, as best seen in Fig. —1—. This adjusting bar —15— therefore extends lengthwise under the longitudinal center of the pedal —8—, and its upper rear end is pivoted at —18—, to the front end of a link —19—; the rear end of said link being pivoted at —20—, to the front end of the forwardly extending arm —7— of the bracket —6—, thus establishing an adjustable connection between the pedal —8— and movable side of the exhaust bellows —2—. It is now clear that by adjusting the bar —15— lengthwise of the pedal in the guides —14—, the pivotal connection —18— with the link —19— will be moved nearer to or farther from the fulcrum —9— of the pedal, thereby establishing a variable leverage between the pedal and

movable side of the exhaust bellows —2—. For example, when the operator desires a heavy pressure and consequent slow action of the pedal mechanism, the adjusting bar —15— is moved rearwardly, thereby throwing the load connected with the pivotal point —18—, farther from the fulcrum point —9— of the pedal —8—, the pin —17— being inserted in the proper aperture —16— to hold or lock the adjusting bar —15— in this position. On the other hand, if a lighter pressure is desired, the adjusting bar —15— may be moved or adjusted forwardly, thereby bringing the load connected to the pivot —18— closer to the fulcrum —9—, thus diminishing the power required to operate the exhaust device. In like manner, the bar —15— may be adjusted to bring the load or pivot —18— to any intermediate position by simply removing the locking bolt —17— and reinserting it in one or the other of the intermediate holes —16—, which enables the operator to obtain any pressure desired, that is, light, heavy or medium.

It will, of course, be understood that when the load at the pivot —18— is adjusted to its extreme outward limit, the leverage and pressure required to operate the pedal, will be materially increased, and its action will therefore be slow, while on the other hand, if the point of applying the load at —18—, is adjusted to its extreme inner position nearer the fulcrum —9—, the leverage and pressure required to operate the exhaustive device will be materially diminished and its action will therefore be much more rapid. In other words, in one extreme position of the adjusting bar —15—, a minimum speed of action is obtained, with a maximum power, while in the other extreme position in the adjusting of said bar a maximum speed of action is obtained with a minimum power.

It is evident from the foregoing description and drawings, that by the depression of the pedals, the movable side of the bellows will be thrown rearwardly against the action of a suitable retraction spring —21—, said retraction spring serving to return the bellows —2—, and also the pedal to their starting positions when the pressure upon the pedal is removed.

It will be observed that the pin —17— normally rests against the rear face of the forward guide loop —14— and that the loops are spaced apart a sufficient distance to

allow the bar —15— with the pin —17— therein to slide endwise when the pedal action is folded and unfolded to and from its inoperative position as shown by dotted lines Fig. 1, without removing the pin, such shifting movement being made to conform to the relative positions of the fulcrums —12— and —20—. 65

What I claim is:

1. In a self-playing musical instrument, an exhaust bellows, a pedal fulcrumed at one end, and means adjustable lengthwise of the pedal for transmitting motion from the pedal to the movable side of the bellows. 70

2. In a self-playing musical instrument, an exhaust bellows, a pedal fulcrumed at the heel thereof, and a connection between the bellows and pedal having a flexing joint adjustable lengthwise of the pedal. 75

3. In a self-playing musical instrument, an exhaust bellows, a pedal fulcrumed at its heel, a member adjustable lengthwise of the pedal, means for locking said member in its adjusted position, and connections between said member and movable side of the bellows. 80

4. In a self-playing musical instrument, an exhaust bellows, a pedal fulcrumed at its heel, a bar slidable lengthwise of the pedal, means for holding the bar in its adjusted position, and connections between said bar and movable side of the bellows. 85

5. In a self-playing musical instrument, an exhaust bellows, a pedal, guides on the pedal, a bar adjustable in said guides lengthwise of the pedal, means to lock the bar in its adjusted position, and connections between said bar and movable side of the bellows. 90 95

6. In a self-playing musical instrument, an exhaust bellows having fixed and movable sides, an upwardly swinging support foldable toward and from the bellows, a pedal fulcrumed at its heel upon said support and foldable upwardly therewith, guides on the pedal, a bar adjustable in said guides lengthwise of the pedal, means for locking said bar in its adjusted position, a bracket on the movable side of the bellows, and a link having one end pivoted to said bar and its other end pivoted to the bracket. 100 105

In witness whereof I have hereunto set my hand this 20th day of April 1908.

LEWIS B. DOMAN.

Witnesses:

H. E. CHASE,

C. M. McCORMACK.