

G. O. SPENCE.
MELODEON.

No. 16,296.

Patented Dec. 23, 1856.

Fig. 1.

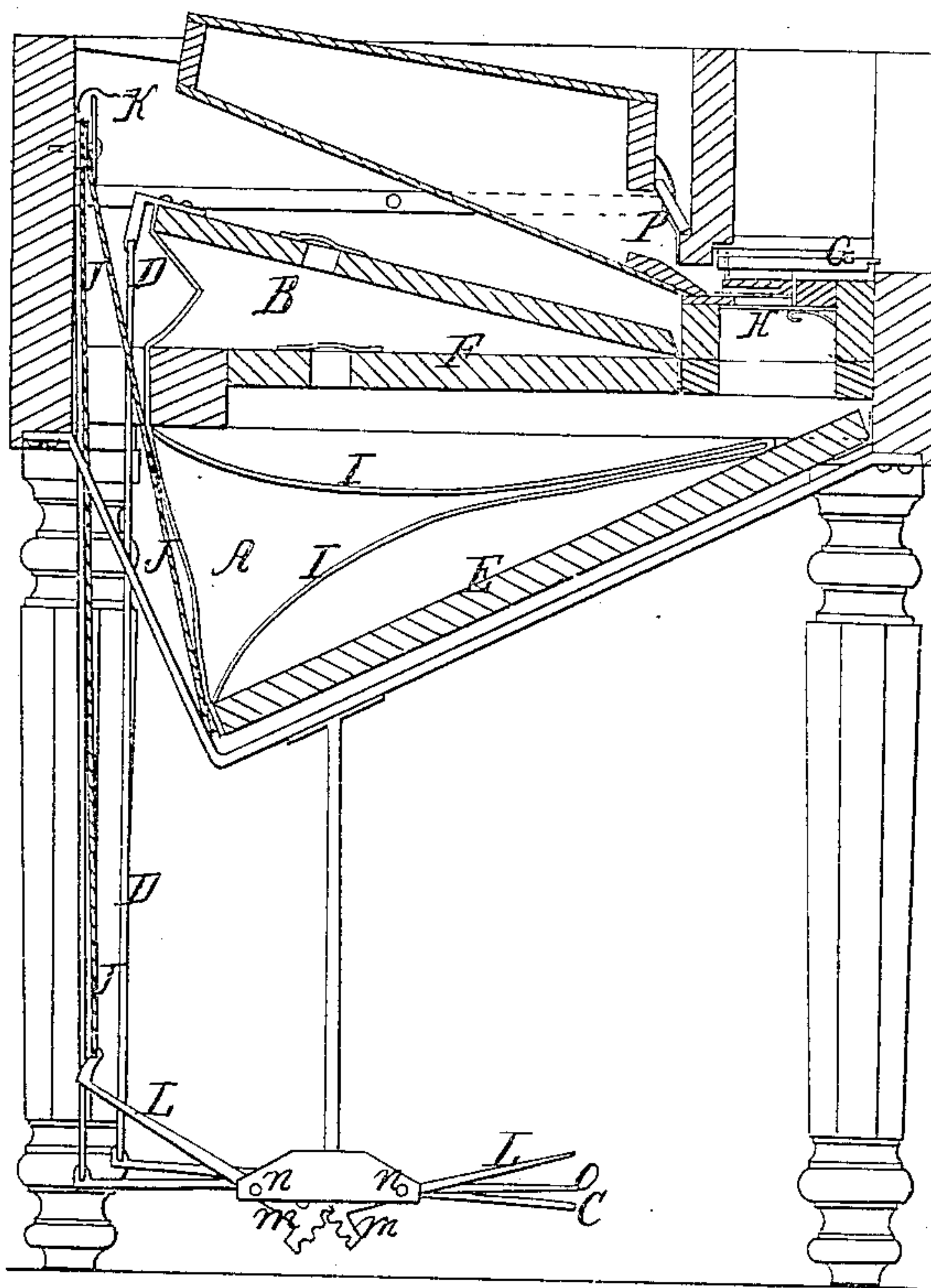
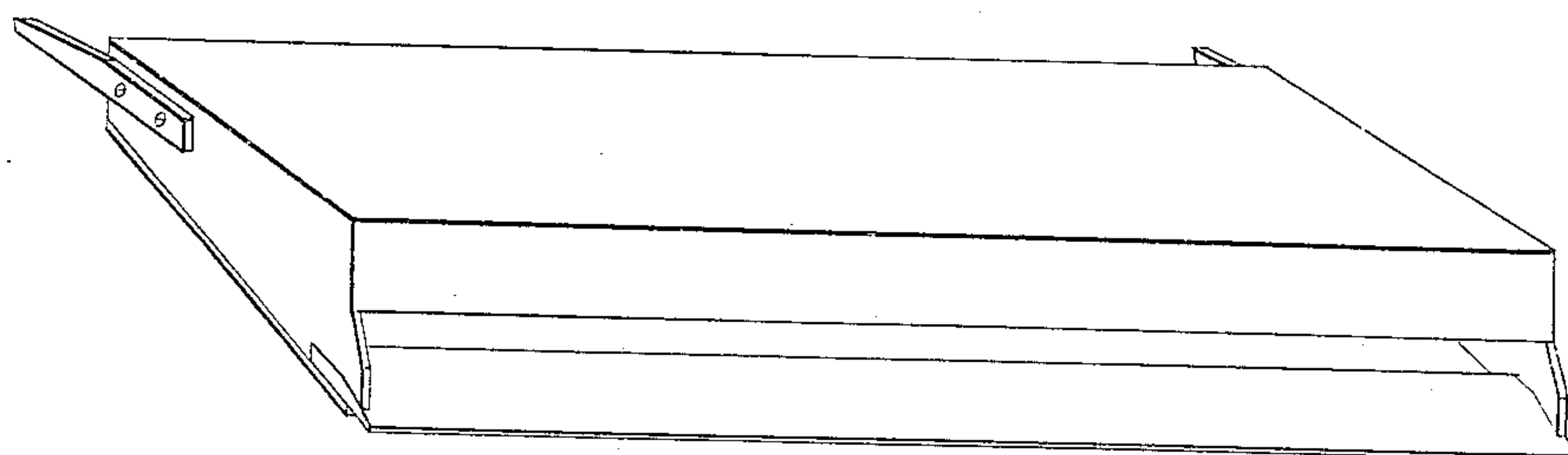
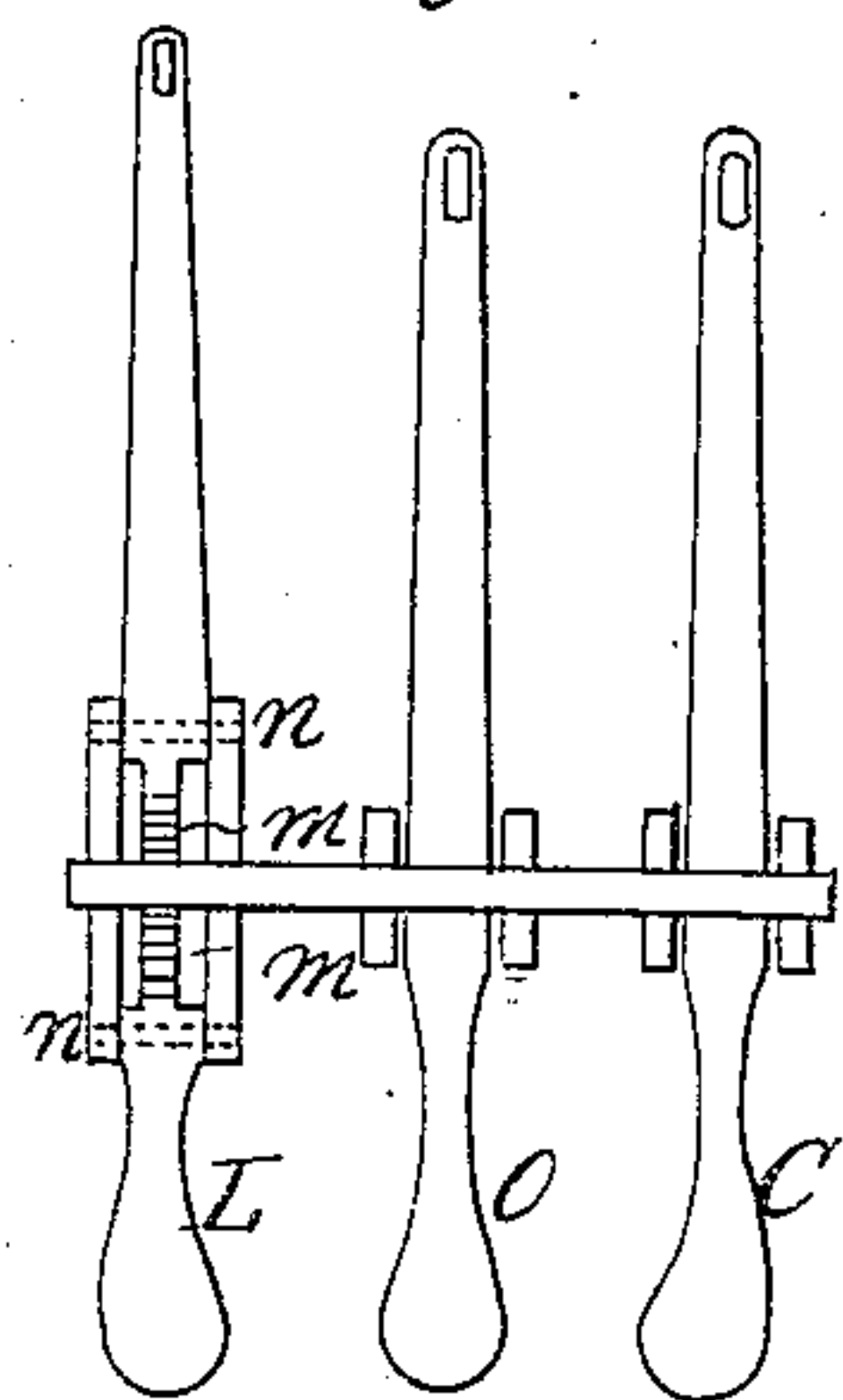


Fig. 2.



UNITED STATES PATENT OFFICE.

G. O. SPENCE, OF ELMIRA, NEW YORK.

MELODEON.

Specification of Letters Patent No. 16,296, dated December 23, 1856.

To all whom it may concern:

Be it known that I, GIDEON O. SPENCE, of Elmira, in the county of Chemung and State of New York, have invented a new and
5 useful Improvement in Melodeons and other Reed Instruments; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the
10 annexed drawings, making part of the specification, and to the letters of reference marked thereon.

The same letters refer to like parts.

It is well known that a great deficiency
15 has heretofore existed in the melodeon, in its incapacity to admit of the performer producing a competent diminuendo at pleasure, or as the music may require. My improvement is designed to obviate this ob-
20 jection, by placing the instrument completely under the control of the performer.

To render the nature of the improvement more readily understood, I will explain the means by which a note or tone is produced
25 upon this species of reed instrument.

Fig. 1 is a vertical section through the bellows and reed-board of a melodeon. A is the receiver. B the exhaust chambers or bellows. This operates as an air pump
30 in exhausting the receiver, being connected with the pedal *c* by the rod D. The action of the foot of the performer on the pedal puts the exhauster in motion, and a vacuum begins to form in the receiver. As this
35 vacuum is formed, the receiver collapses from the pressure of external atmosphere, and by so doing the lower board or partition E rises, the center partition F being stationary. To counteract the external pres-
40 sure and keep the air within the receiver sufficiently rarefied to produce a strong draft through the reed, the springs I, I, are placed in the receiver.

As soon as this vacuum begins to form,
45 a note may be produced by touching one of the keys, G, which opens the valve H, in the reed board, allowing the external air to pass through the reed into the receiver.

It will be at once seen that the strength
50 of the tone depends upon the force with which the current of air is driven through the reed, causing it to vibrate more or less

violently, and this force depends upon the degree of exhaustion of the air from the receiver. If the tone be slight, the vigorous
55 action of the pedal will increase it, producing the crescendo as desired, but if it be desired to produce a diminuendo when the receiver is nearly exhausted the performer must wait until the receiver has sufficiently
60 filled, by the air passing through the reed, to diminish the external pressure, and thereby cause the tone to diminish in proportion. This is a great obstacle to the execution of soft and expressive passages, and indeed
65 very embarrassing to the performer as it interrupts the regular time of the music. The pressure of the springs being arbitrary the performer must "bide his time" till the balance between the external and inter-
70 nal pressure is sufficiently restored to produce the desired effect. If in a forte passage the performer wishes to produce a diminuendo, by suddenly counteracting the pressure of the springs I, I, that desirable
75 result is effected, inasmuch as the force of the passage of air through the reed depends then solely upon the rarefied state of the receiver.

In this my improvement consists. I at-
80 tach a strong cord J to the bottom of the receiver, pass it over the pulley K, which is attached to the back frame of the instrument, from whence it descends to the third
85 pedal L. This pedal is constructed in two parts, each being connected by a rack segment *m, m*, and move on the pinions *n, n*. Pressing the foot downward on the pedal draws the cord J over the pulley, raising the
90 bottom of the receiver thereby exerting a counterforce to that of the springs I, I.

In playing a loud passage, the receiver becomes nearly exhausted, and the springs
95 press with a force which produces a powerful suction, through the reed. The performer can then, by placing his foot on the third pedal, diminish that suction until as soft a tone as he desires is produced. By increasing the pressure on the pedal, the
100 diminuendo is produced, prolonged or varied at pleasure; or he can arrest the loud tone on the instant and produce a crescendo from the softest pianissimo, and any modulation which the spirit or pathos of the piece

may require, thus making the instrument perfectly subservient to the will of the performer.

Fig. 2 is a plan view of the pedals.

5 O, is the pedal for operating the valve P.

What I claim as my invention, and for which I desire to secure Letters Patent, is:

The application of the third pedal to the

receiver of melodeons for facilitating the production of the crescendo and diminuendo 10 in the manner, and for the purpose herein fully set forth.

G. O. SPENCE.

Witnesses:

JOHN LAMORUEX,
DANIEL B. SMITH.