

UNITED STATES PATENT OFFICE.

EDWARD PORTER, OF NEW YORK, N. Y.

IMPROVEMENT IN DAMPER MECHANISMS FOR PIANO-FORTES.

Specification forming part of Letters Patent No. **165,503**, dated July 13, 1875; application filed April 10, 1875.

To all whom it may concern:

Be it known that I, EDWARD PORTER, of the city, county, and State of New York, have invented a new and useful Improvement in Damper-Pedal for Pianos, of which the following is a specification:

Figure 1 is a vertical section of a piano to which my improvement has been applied, taken through the line *x x*, Fig. 2. Fig. 2 is a vertical section of the same, taken through the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to enable the dampers of the bass-strings of a piano to be raised and held suspended without raising the dampers from the other strings—that is, the strings of the upper part of the scale—by means of the ordinary damper or loud-pedal mechanism.

The invention consists in the strip attached to the forward upper part of the lifter-rail, and extending beneath the forward part of the damper-levers of two octaves, more or less, of the bass-strings; and in the combination of the spring with the damper-pedal spring, and with the strip attached to the lifter-rail, as hereinafter fully described.

A represents the case of a piano. B is the lyre, to the lower end of which is pivoted the treadle C. Upon the inner end of the treadle C rests the lower end of the pedal-rod D, the upper end of which is connected with the damper-pedal spring E. The spring E passes through an opening in the upper part of the lyre B, and its downward movement is limited by a small stop-block, *e'*, placed in the bottom of said opening. Upon the spring E, near its free end, rests the lower end of the connecting-rod F, which serves as a continuation of the pedal-rod D, passes up through a hole in the bottom of the case A, and its upper end rests against the lower side of the lifter-rail G, near its forward or free edge. The lifter-rail G is hinged at its rear edge to the forward side of the bar or frame H, to the top of which, or to blocks attached to said top, are hinged the rear ends of the damper-levers I. The forward ends of the damper-levers I are just above the inner ends

of the keys J, so that they may be raised by said keys when they are depressed to operate the action. To the forward part of the damper-levers I are pivoted the lower ends of the buttons K, into the upper ends of which are screwed the lower ends of the damper-wires L. The damper-wires L pass up through the sounding-board M or the bushing-rail, and to their upper ends are attached the dampers N, which rest upon the strings O. One end of the strings O is secured to the hitch-pins P, and their other ends are secured to the tuning-pins Q.

By this construction, as each key J is depressed, the movement of the key raises the damper from the corresponding string, and allows it to vibrate to sound the note. As the key is released the damper drops upon the string and stops its vibration. As thus far described, there is nothing new.

To the upper side of the forward edge of the lifter-rail G, beneath two octaves, more or less, of the damper-levers I of the bass-strings O, is attached a strip, R, of wood, as shown in Figs. 1 and 2, so that when the damper-pedal is operated the first effect will be to raise the dampers N of the said bass-strings and hold them raised, to allow any of said bass-strings, when struck, to continue in vibration, and thus prolong the note. If the depression of the damper-pedal is continued the next effect is to raise all the dampers, and hold them raised until the said damper-pedal is released.

To enable the performer to know exactly when the pedal has been depressed far enough to raise the bass-dampers, and not the others, a spring, S, is attached to the bottom of the piano-case A, in such a position that its free end may be at such a distance above the free end of the damper-pedal spring E as to be struck by the end of the said spring E when the damper-pedal has been depressed to the proper point to raise the bass-dampers, but not the others.

The spring S should be of such a strength that the operator may feel it distinctly when it is brought into action, but it should not be strong enough to inconvenience the operator when he wishes to raise all the dampers. The upward movement of the free end of the spring

S is limited by a stop, T, attached to the bottom of the piano-case, and its downward movement is limited, so that it will not be struck by the spring E too soon, by a stop or keeper, U, also attached to the bottom of the piano-case.

I am aware that it is not new to uphold a single damper or a group of them by pedal mechanism; but

What I claim is—

1. The strip R, attached to the forward upper part of the lifter-rail G, and extending beneath the forward part of the damper-levers

I of one or more octaves of the bass-strings, constructed and arranged substantially as herein shown and described.

2. The combination of the spring S with the damper-pedal spring E, and with the strip R, attached to the lifter-rail G, when constructed and arranged substantially as herein shown and described.

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Witnesses:

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