A. KRELL & P. WELIN. TONE SOFTENING DEVICE FOR MUSICAL INSTRUMENTS. APPLICATION FILED SEPT. 8, 1908.

1,032,844.

Patented July 16, 1912.

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COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

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TONE-SOFTENING DEVICE FOR MUSICAL INSTRUMENTS.

1,032,844.

Specification of Letters Patent. Patented July 16, 1912. Application filed September 8, 1908. Serial No. 452,006.

To all whom it may concern: Be it known that we, ALBERT KRELL and PETER WELLN, citizens of the United States, residing, respectively, at Connersville, in the county of Fayette and State of Indiana, and Worcester, county of Worcester, and State of Massachusetts, have invented a new and useful Tone-Softening Device for Musical

Instruments, of which the following is a 10 specification.

This invention relates to a stringed musical instrument.

The principal objects of the invention are to provide means divided up into sections in

- 15 any desired way for softening the blows of the hammers of the instrument; and to provide means conveniently located on the keybed for operating said sections independently of each other; also to improve and
 20 simplify the construction of divided muf-
- fling or softening devices. Many different schemes have been proposed for dividing the action of musical in-

struments so as to modulate or accent a por-

- 25 tion thereof without interfering with the rest, but as a general proposition they have been of a complicated nature, or in some cases of such a character that they were likely to get out of repair and were not
- 30 easily accessible for that purpose. They have also been open to numerous other objections which need not be specified in detail here.

The principal object of this invention is 35 to provide for softening the blows of the hammers in a most simple and convenient manner, and at the same time to provide means therefor which will always work in the same way and will have exactly the same

40 effect on all the notes which it is intended to soften, and which can always be depended upon to have a uniform softening effect. Further objects and advantages of the in-

vention will appear hereinafter. Reference is to be had to the accompany-

45 Reference is to be had to the accompanying drawing, in which—

Figure 1 is a perspective view of a portion of a musical instrument showing one way in which this invention may be applied

50 thereto; Fig. 2 is a sectional view on an enlarged scale of pneumatic connections for operating the device, and Fig. 3 is a similar

sectional view showing means for controlling the pneumatic.

The invention is shown as applied to an 55 ordinary form of piano, in which the strings 10 are operated upon by the hammers 11 in a well-known manner. Located at convenient points and preferably pivoted respectively to the end of the casing and to 60 a bracket 12 are swinging arms 13 which carry muffler bars or sections 14, each having thereon a piece of felt 15 depending there-from and in such position that when the arms are pulled down the felt will be in the 65 path of the hammers so as to soften the tone produced thereby. It will be seen that in the instrument illustrated, there are two of these muffler bars, each independent of the other, but it will be readily understood that the 70 instrument may be constructed with any desired number, and that each one may be of any length which may be chosen for producing the desired effect.

Each of the muffler bars is shown as be-75 ing held up by a spring 17, and as being operated downwardly by a rod 18 connected with the movable leaf of a pneumatic 19. This pneumatic as shown more particularly in Fig. 2, is connected with a chamber 20 80 connected with the outer air through a passage 21, and with a suction chamber 22 through a passage 23. A secondary valve 24 controls the passage 29. If secondary value operated by a pneumatic diaphragm or 85 pouch 25 which is controlled by a double valve 26, which controls the connection of a passage 27, which is connected with the lower side of the pouch 25, with the outer air and with the suction chamber. The suc- 90 tion chamber is connected with a source of air tension by a tube or passage 28. The primary valve 26 is controlled in the wellknown way by a pouch or diaphragm 30 which has a bleeder passage 31 to the suc- 95 tion chamber and is connected by a tube or passage 32 with a channel 33 in the keybed shown in Fig. 3. This channel connects with the outer air through a channel 34 and is controlled by a valve 35 normally pushed 100 closed by a spring 36 to prevent the entrance of the outer air. Rigidly connected with the valve 35 is a push-button 37 for forcing it down and letting the air into the passages

33 and 32 so as to raise the values 26 and 24 and connect the chamber 20 and the operating pneumatic with the suction chamber, thus lowering the bar which is connected
5 therewith. This interposes the piece of felt between the hammers and strings and deadens the tone.

It will be seen that both or all of the sections or rails can be operated independently

- 10 of each other in this way, and that there will be no possibility of the device failing to work if the air suction is maintained. It will also be seen that the device will work at the same efficiency on all the hammers
 15 which it controls, and that there will be no
- variation from one to the other due to leakage or other causes which have been the case with some modulating devices heretofore proposed; also that the whole device is ex-
- 20 ceedingly simple and inexpensive, and casily repaired if it should get out of order and that while capable of general use, it is particularly adapted to pneumatic musical instruments in which there is a source 25 of air tension at hand.

While we have shown and described a preferred form of the invention, we are aware that many modifications may be made therein by any person skilled in the art 30 without departing from the scope of the invention as expressed in the claim. There-

fore, we do not wish to be limited to all the details of construction shown and described, but

What we do claim is:—

In a musical instrument, the combination with the case, key-bed and hammers, of a lever pivoted at each end of the case, an inside support projecting forwardly from the back of the case having a pivot in line with 40 the pivots of said levers, additional levers pivoted on the pivot of said support, a mufiler bar having a flexible strip depending therefrom supported by each pair of said levers, and pneumatic means mounted 45 at the inside of the ends of the case for independently moving each of said pairs of levers so as to bring the bars in position to soften the blows of a part of the hammers of the instrument. 50

In testimony whereof we have hereunto set our hands, in the presence of two subscribing witnesses.

ALBERT KRELL. PETER WELIN.

Witnesses as to signature of Albert Krell: F. A. Chitwood, MAYME I. HEEB.

Witnesses as to signature of Peter Welin: A. E. FAY, C. FORTHURSTON

C. Forrest Wesson.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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