

W. A. BEIN.
MUFFLER OR DAMPER FOR PIANOS.

No. 542,132.

Patented July 2, 1895.

Fig. 1.

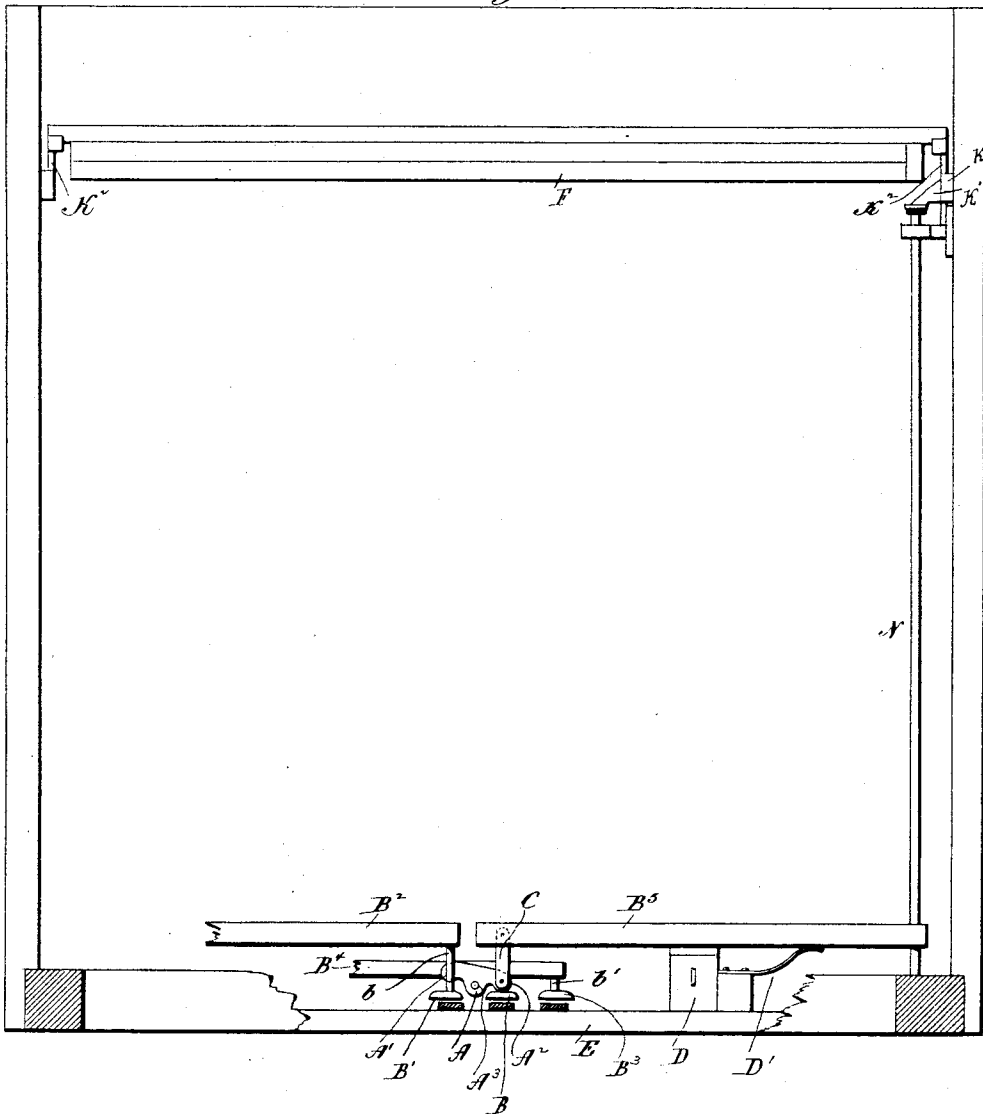
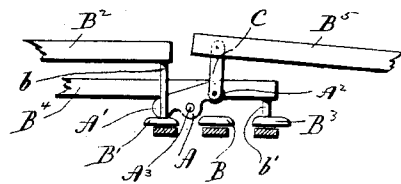


Fig. 2



Witnesses
J. H. Sperryway
Lillian D. Kelsey

William A. Bein
Inventor
Ogden Earle Seymour

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Fig. 4

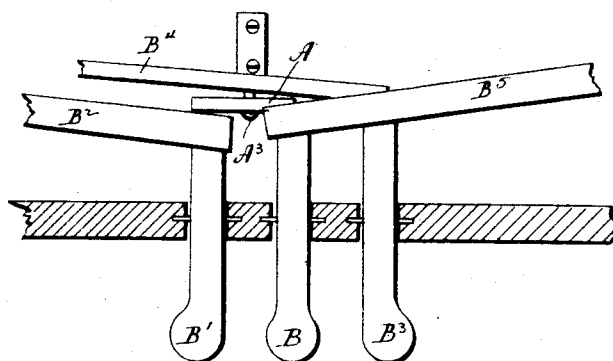
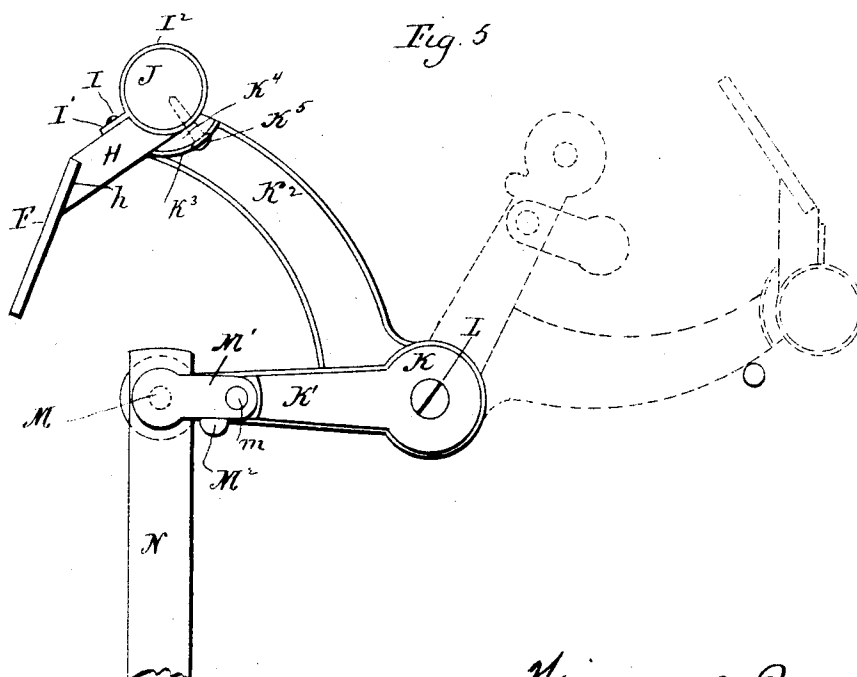


Fig. 5



Witnesses
J. H. Shumway
Lillian D. Kelby

William A. Bein
Inventor
By Atty. J. Earle Seymour

UNITED STATES PATENT OFFICE.

WILLIAM A. BEIN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO THE
B. SHONINGER COMPANY, OF SAME PLACE.

MUFFLER OR DAMPER FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 542,132, dated July 2, 1895.

Application filed April 1, 1895. Serial No. 544,017. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. BEIN, of New Haven, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in Mufflers or Dampers for Pianos; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and
10 exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view, partly in vertical section and partly in front elevation, of a piano-case provided with my improved muffler attachment; Fig. 2, a broken view showing the position of the two-armed releasing-lever when the muffler is applied; Fig. 3, a view of the piano-case in vertical transverse section,
20 showing one of the pivotal carrying-brackets, the muffler-stick and the outer end of the muffler-pedal lever; Fig. 4, a broken plan view of the pedals, showing the position of the two-armed releasing-lever with respect to
25 the inner ends of the muffler-pedal and the releasing-pedal; Fig. 5, a detached broken view, in side elevation, of that one of the pivotal carrying-brackets which is furnished with a coupling-arm.

30 My invention relates to an improvement in mufflers or dampers for pianos, the object being to provide a simple, compact, and effective device composed of few parts and not liable to get out of order and dealing particularly with the mounting of the muffler-strip and the pedal-action for operating the same.

With these ends in view my invention consists in the combination, with a muffler-pedal,
40 of a releasing-pedal and a two-armed releasing-lever co-operating with both pedals.

My invention further consists in a pair of pivotal brackets respectively secured to the opposite ends of a piano-case, a tube connecting the said brackets, a felt bar secured to the tube, a long strip of felt secured to the bar and depending therefrom, and a muffler-stick positively connected with one of the brackets.

50 My invention further consists in certain details of construction and combinations of

parts, as will be hereinafter described, and pointed out in the claims.

In carrying out my invention I employ a small two-armed releasing-lever A, having two corresponding arms A' and A² and hung
55 upon a horizontal pivot A³ at a point between the muffler-pedal B and the releasing-pedal B', which latter, I may here remark, has a releasing function in addition to its primary pedal function. Ordinarily it will be the soft pedal,
60 and connected by means of a short pedal-stick b with a soft-pedal lever B², as herein shown. If preferred, the loud pedal B³, located on the opposite side of the muffler-pedal B from the soft or releasing pedal B' may
65 be arranged to coact with the muffler-pedal for releasing the same. In that case the said two-armed releasing-lever would be located between the muffler-pedal and the loud pedal, which latter is connected by means of a pedal-
70 stick b' with a loud-pedal lever B⁴; or any other pedal, whatever its function, might be employed to coact with the two-armed releasing-lever for releasing the muffler-pedal. As
75 herein shown, the arms A' and A² of the said two-armed releasing-lever have direct friction, bearing, respectively, upon the extreme inner ends of the muffler and releasing-pedals, as shown in Fig. 4, but no positive connection with either pedal. The arm A² of the said
80 lever is, however, pivotally connected with the lower end of a link C, the upper end of which is pivotally connected with the inner end of the muffler-pedal lever or trap-lever B⁵, which has rocking action midway of its
85 length upon a block D, secured to the bottom E of the piano-case. The said block D has secured to it a spring D', which engages with the outer end of the lever B⁵, and may be
90 termed a counterbalance-spring, for reasons which will appear hereinafter.

Before describing the action of my improved two-armed releasing-lever I will proceed to detail the other feature of my invention, which relates particularly to the mounting
95 of the long strip F, of felt, which constitutes the muffler proper, and which, in the performance of its muffling function, is let down so as to engage with the strings G of the piano, only one of which is shown. The
100

upper edge of this strip is inserted into a rabbit *h*, formed in and extending throughout the length of the outer edge of the felt bar *H*, which is made of wood, the felt being secured 5 in the rabbit by glue or otherwise. The said felt bar is secured by screws *I*, or equivalent means, to the lip *I'* of a lip-tube *I²*, which is made of sheet metal and derives its name from its provision with the said lip *I'*. As 10 herein shown, the inner or upper edge of the bar is grooved, as at *h'*, to adapt the bar to fit up against the tube at a point under the lip *I'* thereof. This tube extends throughout the length of the piano-case, and receives at 15 each end a wooden plug *J*, the said plugs being provided for the attachment of the tube to the pivotal tube-carrying brackets *K K'*, respectively secured to the inner faces of the ends *E' E'* of the piano-case. These two 20 brackets are exactly alike, except for the provision of the bracket *K'* with a coupling-arm *K²*. Each bracket has a carrying-arm *K³*, constructed at its outer end with a flange *K⁴*, receiving a screw *K⁵*, entering the tube and the plug *J* in the adjacent end thereof. The 25 said brackets are pivotally connected with the respective ends *E' E'* of the piano-case by means of horizontal screws *L*, passing through the brackets and entering the said ends of the case. The coupling-arm *K²*, with which 30 the bracket *K'* is provided, is furnished at its outer end with a coupling-pin *M*, a pivotal retaining-plate *M'* hung upon a pivot *m* and a stop *M²*, which is engaged by the lower edge 35 of the plate and supports it in right position for engagement with the pin. The said pin *M* is provided for the connection with the said coupling-arm of the upper end of the vertically-arranged muffler-stick *N*, the lower end 40 of which is connected with the outer end of the muffler-pedal lever *B⁵*, before referred to. In order to connect the upper end of the stick with the coupling-arm *K²*, the retaining-plate *M'* is lifted to clear the pin with which the 45 upper end of the stick is then engaged, being suitably perforated for the purpose. After this the plate is swung down to engage with the outer edge of the pin, whereby the stick is retained thereupon. To disconnect the 50 stick from the coupling-arm, it is only necessary to lift the plate and spring the stick off from the pin. When the stick and coupling-arm are disconnected, both brackets may be thrown over into the position shown by 55 broken lines in Fig. 5, carrying the lip-tube, felt bar, and felt with them, a convenience in tuning.

Having now described in detail one form which my improvement may assume, I will 60 proceed to set forth the operation of the same.

In order to muffle the piano, the outer end of the muffler-pedal *B* is depressed by the foot, whereby the two-armed releasing-lever will be turned from right to left and from 65 the position in which it is shown in Fig. 1 into the position in which it is shown in Fig. 2. The said releasing-lever, when turned as de-

scribed, acts through the medium of the link *C*, which connects it with the muffler-pedal lever, to lift the inner end and depress the 70 outer end thereof, whereby the said muffler-pedal lever positively draws down the muffler-stick, the lower end of which is pivotally connected with it, and which in turn positively acts to throw on the muffler felt or damper 75 through the pivotal connection of its upper end with one of the pivotal carrying-brackets.

It will be understood that the described operation of the muffler-pedal and the train of 80 parts acted upon thereby has been in opposition to the force of the counterbalance-spring *D'*, which exerts a constant effort to lift the outer end of the muffler-pedal lever, and thus hold the muffler felt or damper away from 85 the piano-strings; but when the said felt or damper has been applied, as described, the power of the counterbalance-spring is not enough of itself to throw the parts back again into their normal positions, and the muffler attachment will therefore remain on without 90 the aid of the performer after it has once been put on. Now, when it is desired to dispense with the muffler attachment and secure the full tone of the piano again, the outer end of the releasing-pedal *B'* is depressed by the 95 foot, whereby its inner end will be elevated and the releasing-lever positively turned back from left to right and from the position in which it is shown in Fig. 2 into the position 100 in which it is shown in Fig. 1, and as the releasing-lever is turned from left to right, as described, it will act through the medium of the link *C* to positively draw down the inner end of the muffler-pedal lever and elevate 105 the outer end of the same, and hence elevate the muffler-stick, which in turn will swing the carrying-brackets forward and lift the muffler felt or damper away from the strings. The counterbalance-spring *D'* will now as- 110 sert itself and support the parts in the positions in which they were left by the elevation of the muffler-stick. It will be understood, of course, that when the foot is removed from the releasing-pedal the same at once goes back into its normal position, inasmuch as it has 115 no positive connection with the releasing-lever. I would call particular attention to the fact that my improved muffler attachment is not locked in either position, but that it is counterbalanced and is operated by disturb- 120 ing its equilibrium, and that, although the muffler felt or damper is positively brought into operation and positively cut out of operation, it is maintained in one position or the other, not by a lock, but by the restraining 125 action of friction and gravity.

It is apparent that my improved releasing-lever is not necessarily used in connection with a muffler attachment employing the particular pivotal carriers shown, and vice versa, 130 and I would therefore have it understood that I do not limit myself to the exact construction shown and described, but hold myself at liberty to make such changes and alterations

as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a muffler attachment for pianos, the combination with a muffler pedal and a releasing pedal, of a two-armed releasing lever pivoted between the said pedals, and arranged to be tilted in opposite directions by the action of the same upon its respective arms, substantially as described.

2. In a muffler attachment for pianos, the combination with a muffler pedal and a releasing pedal, of a pivotal two-armed releasing lever arranged to be tilted in opposite directions by the respective pedals, a muffler pedal lever, and a link connecting the same with the releasing lever, substantially as set forth.

3. In a muffler attachment for pianos, the combination, with a muffler pedal and a releasing pedal, of a pivotal two-armed releasing lever located between the two pedals at the inner ends thereof, upon a horizontal pin, and respectively tilted in opposite directions by the engagement of its ends by the inner ends of the pedals, substantially as set forth.

4. In a muffler attachment for pianos, the combination with a pivotal bracket having the muffler felt connected with it, and pro-

vided with a coupling arm furnished with a coupling pin and retaining plate, of a muffler stick, the upper end of which is detachably connected with the said arm, through the medium of the said pin and plate thereof, substantially as set forth.

5. In a muffler attachment for pianos, the combination with two brackets, pivotally secured, respectively, to the inner faces of the ends of the piano case, of a lip tube secured at its ends to the said brackets, a felt bar connected with the said tube through the lip thereof, and a muffler felt connected with the outer end of the said bar, substantially as set forth.

6. In a muffler attachment for pianos, the combination with two brackets, pivotally secured, respectively, to the inner faces of the ends of the piano case, of a lip tube connected at its ends with the said brackets and furnished in its ends with plugs, a felt bar connected with the tube through the lip thereof, and a felt strip connected with the bar, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WM. A. BEIN.

Witnesses:

FRED. C. EARLE,
LILLIAN D. KELSEY.