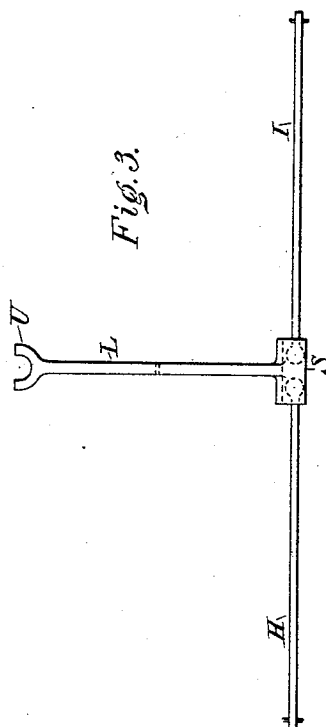
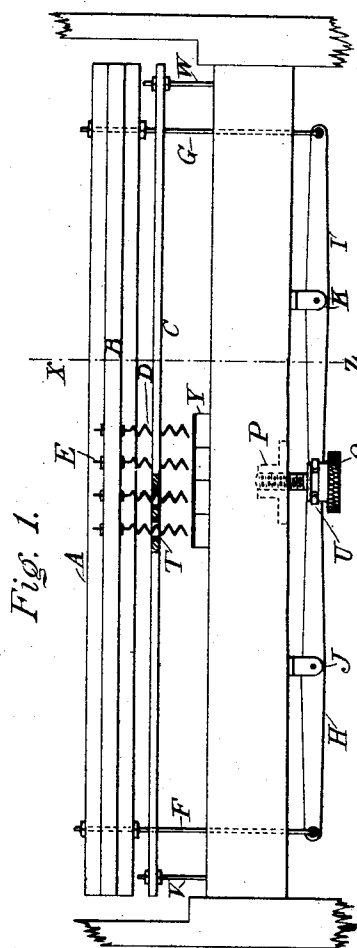
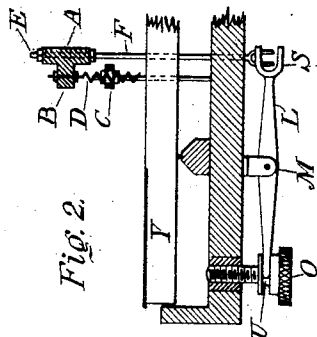


(No Model.)

G. H. ARTHUR.
TOUCH REGULATING DEVICE FOR PIANOS.

No. 535,185.

Patented Mar. 5, 1895.



WITNESSES:

John B. Padell
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UNITED STATES PATENT OFFICE.

GEORGE H. ARTHUR, OF TERRE HAUTE, INDIANA, ASSIGNOR OF ONE-HALF
TO RICHARD DAHLEN, OF SAME PLACE.

TOUCH-REGULATING DEVICE FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 535,185, dated March 5, 1895.

Application filed November 23, 1894. Serial No. 529,679. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. ARTHUR, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented a new and useful Touch-Regulating Device for Pianos, of which the following is a specification.

The object of my invention is to provide a simple and effective device which, first, may be used with ease and certainty to adjust the resistance of piano keys to the touch of the performer; second, will have no injurious effect upon the tone of the piano; third, may be by the same means used for its adjustment, made to leave the keys in their normal condition, and, fourth, may be readily applied to, or removed from the piano. I attain these objects by means of a bar or rail supported above the key board and carrying springs adapted to engage with the keys, and capable of individual adjustment with reference to the rail; the springs being supported and muted by a second rail, fixed adjustably to the key bed, the rail carrying the springs being supported and its motion controlled by rods which connect it with screw controlled levers, by which its position is adjusted, the general arrangement of my device being shown in the accompanying drawings, in which—

Figure 1 represents a front elevation of the device and the key board of a piano, shown in their relative positions. (To make the drawings simpler, a sufficient number only of the keys and springs are shown as will clearly illustrate the invention.) Fig. 2 represents a section of the rail and keyboard taken at the line X Z, the levers H and I being removed. Fig. 3 represents a plan view of the levers—without connecting parts—which are situated beneath the key bed.

Similar letters refer to similar parts throughout the several views.

In Fig. 1, A, represents a rail or bar extending the length of the key board and carrying by means of the projecting ledge B a series of spiral springs D, the springs being so arranged on the rail that each piano key has a spring directly above it, and adapted to engage with it. The shanks E of the springs D are threaded and by means of nuts are adjusted and clamped to the ledge B. The lower

rail C is attached to the key bed by the rods V and W and has a series of holes through which the springs D pass, the position of the rail C relatively to B being such that the springs are encompassed at about their middle portion. The holes in the rail C are lined with bushings T of felt or other suitable material, which clasp the springs loosely and serve a twofold purpose: the prevention of the buckling of the springs when under compression and as mutes to prevent the springs from taking up sympathetic vibrations from the piano wires. Each spring being adjusted to its key by the means described above, it is seen that a downward motion of the rail A will serve to bring the springs in contact with the keys and the resistance which the springs offer to the keys will be increased as the rail is brought yet lower.

It is essential that means be provided not only to move the rail so as to give any desired resistance to the keys, but also that both ends of the rail be moved equal distances so that the resistance of all the keys shall be alike for any position of the rail. This is accomplished as follows: F and G, (Fig. 1,) are vertical rods connecting the rail A with the horizontal levers H and I, the rods F and G serving as means of adjustment and also of support for the rail A. The levers H and I are pivoted at the points J and K to supports fastened to the under side of the key bed. The inner ends of these levers are clasped loosely by the end S of the lever L, (Figs. 2 and 3.) This lever is pivoted to the under side of the key bed at M. Its outer end U is forked to clasp a groove turned in the shank of the screw O, the screw being supported in a nut P, fixed also to the under side of the key bed. The adjustment of the touch of the piano keys is now readily and positively performed by turning the screw O. If the screw be turned so as to move downward from the nut, the inner end of the lever L will be correspondingly elevated, thus depressing the outer ends of the levers H and I, lowering the rail A and bringing the springs D into contact with the keys Y and thus producing any desired resistance to the touch of the performer. By reversing the motion of the screw O, the rail A is moved away from the keys, the re-

sistance being gradually reduced until finally the springs move out of contact with the keys and the action of the piano is left in its normal condition.

5 The device having few points of attachment to the piano proper may be quickly attached to or detached from it as may be desired.

I am aware that a patent has been granted
10 for a touch regulating device, in which a spiral spring is used between the piano keys and a regulating bar, (No. 391,940, dated October 30, 1888, touch regulating rail for pianos and organs.) In this case, however, the spring is
15 carried by the key instead of the rail.

My invention as arranged has many advantages over the device cited, among the more important being, first, cheapness of construction; second, is self contained and may be
20 put together and the springs adjusted before being placed in the piano; also readily removable for purposes of cleaning or repair; third, can be easily applied to an existing piano, whereas if the springs and supports
25 are to be carried by the keys and acted on by plungers attached to the rail, much care and labor are required to obtain the alignment necessary; fourth, the necessary muting of the springs is more easily and effectively done.

30 I am also aware that a patent has been granted to Cadot, No. 215,208, dated May 13, 1879, for an improvement in key-boards,

wherein a horizontal rail is used for carrying spiral springs which are adapted to engage with the keys of a piano. I therefore do not
35 claim the combination of rail and springs, but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. In a touch regulating device for pianos, consisting essentially of a vertically adjustable, horizontal rail carrying spiral springs
40 adapted to engage with the keys of a piano, the combination with said rail and springs of means for individually adjusting said springs, substantially as described. 45

2. In a touch regulating device for pianos, consisting essentially of a vertically adjustable, horizontal rail, carrying spiral springs adapted to engage with the keys of a piano, the combination with said rail and springs of
50 a bushed guide for the support of said springs, substantially as described.

3. In a touch regulating device for pianos the combination with a vertically adjustable rail carrying springs adapted to engage with
55 the keys of a piano, of the supporting rods F and G, the levers H and I, the forked lever L, the movable screw O and the fixed nut P, substantially as described.

GEORGE H. ARTHUR.

Witnesses:

JOHN B. PEDDLE,
E. R. AMES.