

UNITED STATES PATENT OFFICE.

LEOPOLD KÜHNER, OF NEW YORK, N. Y.

IMPROVEMENT IN PIANO ACTIONS.

Specification forming part of Letters Patent No. 135,820, dated February 11, 1873.

To all whom it may concern:

Be it known that I, LEOPOLD KÜHNER, of the city, county, and State of New York, have invented a new and useful Improvement in Piano-Forte Actions; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, which drawing represents a side view of my invention.

This invention relates particularly to an improvement in the action of upright piano-fortes; and it consists in the arrangement of a counter-weight on the hammer, said weight serving to act, in conjunction with the hammer-check and the incline on the shank of the key, in such a manner that by said weight the hammer is caused to fall back even if the string-frame is placed in a vertical position, and that by placing the string-frame in a vertical position the depth of the piano-forte can be reduced, and the instrument requires a comparatively small space without losing in its other qualities.

In the drawing, the letter A. designates the key of a piano-forte, and on this key is secured the jack B, which engages with the butt-end of the hammer C in the usual manner. On the support of the jack I have also secured the hammer-check D, which acts in conjunction with a counter-weight, E, fastened to an arm that extends from the shank of the hammer. The hammer C swings on a pivot, *a*, which is secured in an arm extending from the hammer-rail F, and the inner end of the key acts on the horizontal arm of a bell-crank lever, G, the vertical arm of which stands opposite to the lower end of the damper-lever H. A spring, *b*, has a tendency to retain the damper in contact with the string *s*. When the key is touched the damper is forced back from the string, and at the same time, by the action of the jack B, the hammer is caused to strike the string and to produce the desired tone. By the counter-weight E the hammer

is compelled to fall back from the string immediately on being released by the jack, and as said weight catches over the check D it prevents the hammer from rebounding.

Both the jack B and the hammer-check D are fastened to the shank of the key, and this shank is provided with an incline, F, whereby the correct position of said parts in regard to the butt of the hammer and to the counter-weight is insured.

By this arrangement I am enabled to place the string-frame in a vertical position, and the hammers will always fall back after they have struck the strings, whereas in upright piano-fortes with actions of any of the ordinary constructions the string-frame has to be placed in an inclined position, so as to prevent the hammer from resting against the strings; and if the string-frame has to be placed in an inclined position, the width of the case has to be increased in proportion, while by my invention I am enabled to reduce the depth of the case; and consequently one of my upright piano-fortes requires less room than those in which the string-frame has to be placed in an inclined position.

My action is very simple in its construction, not liable to get out of order, and easily adjusted in all its parts, so that the same can be furnished without increasing the cost of the instrument; and in fact by reducing the width of the case I save in labor, and I can furnish my piano-fortes at a reduced price without loss to me.

What I claim as new, and desire to secure by Letters Patent, is—

The shank of the key A, formed with the incline F and supporting the jack B, and the check D, in combination with the counter-weight E, and hammer C, all constructed and arranged in respect to each other as herein shown and described.

LEOPOLD KÜHNER.

Witnesses:

W. HAUFF,
E. F. KASTENHUBER.