

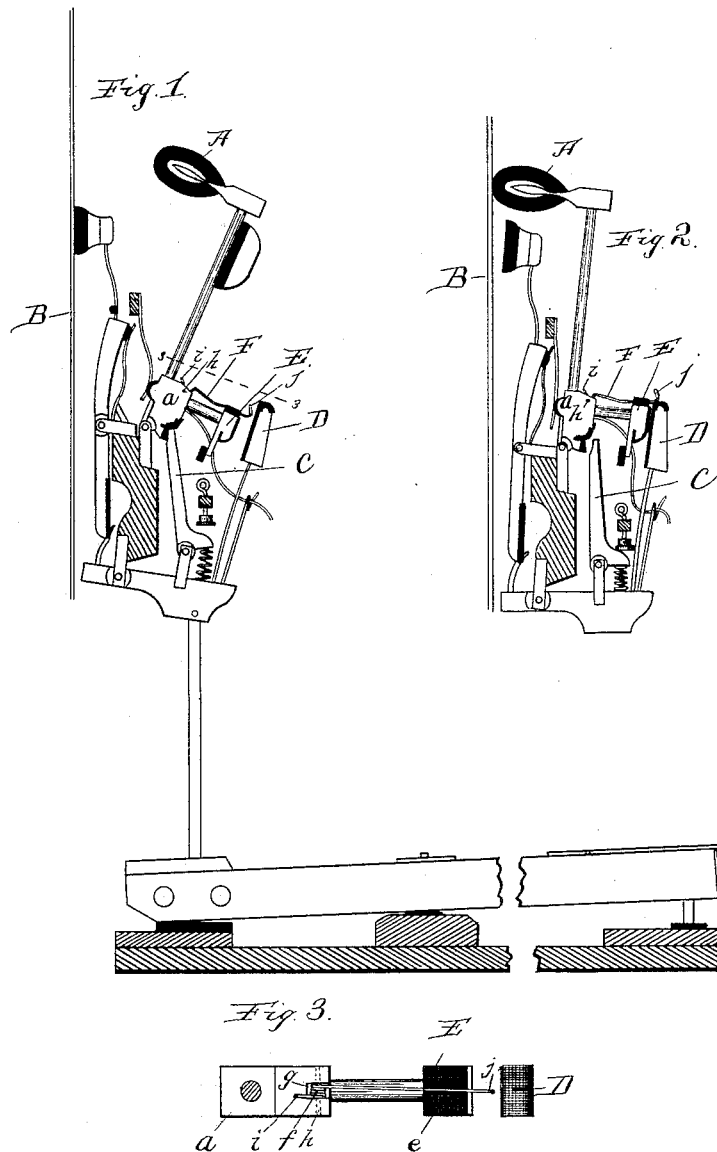
(No Model.)

S. R. HARCOURT.

PIANO FORTE ACTION.

No. 384,254.

Patented June 12, 1888.



Witnesses:

Sam. B. Curtis.
A. W. Munday.

Inventor:

Stillwell R. Harcourt,
By Munday, Warts & Adcock
his Attorneys:

UNITED STATES PATENT OFFICE.

STILLWELL R. HARCOURT, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE W. W. KIMBALL COMPANY, OF SAME PLACE.

PIANO-FORTE ACTION.

SPECIFICATION forming part of Letters Patent No. 384,254, dated June 12, 1888.

Application filed December 8, 1887. Serial No. 257,339. (No model.)

To all whom it may concern:

Be it known that I, STILLWELL R. HARCOURT, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Piano-Forte Actions, of which the following is a specification.

This invention relates to a new method of rendering piano-forte actions quickly repeating under partial strokes of the key—such, for instance, as are imparted in trilling.

I accomplish the object sought by combining a spring with the hammer-butt and back catch or check as follows: One end of the spring is secured in the hammer-butt, while the other end extends outward into such proximity to the back-catch as to ride upon the top of the latter at the conclusion of each key-stroke. By this means an elastic sustaining or lifting force is transmitted to the hammer-butt, which acts to prevent the hammer from falling entirely back, so long as the key remains depressed. This will be better understood from the accompanying drawings, wherein—

Figure 1 is a side elevation of a piano-key and its action, showing the parts at rest. Fig. 2 is a like view of the action, showing the position of the parts at the conclusion of a key-stroke. Fig. 3 is a partial section on the line 3 3 of Fig. 1.

In said drawings, A represents the hammer, *a* the butt thereof, B the string, C the jack, D the back-catch, and E the back-catch bunter, of an ordinary piano-forte action.

F is the spring by which my present improvement is secured. It is attached at one end to the hammer-butt in such manner as to transmit to the butt a lifting-power when its other end is raised. This attachment may consist of a coil, *f*, in the spring, let into a recess, *g*, in the butt, a pin, *h*, passing through the butt and the coil, and the extremity *i* bearing upon the surface of the butt. The free end of the spring extends outward into the neighbor-

hood of the back-catch, and is preferably bent upward, as at *j*, so that it may ride easily over the surface of the catch to the top thereof as the catch moves forward and the spring upward. This occurs at the conclusion of the downstroke of the key, the parts being then in the position shown at Fig. 2, with the hammer in the act of striking the wire. The spring now continues to bear on the catch until the key has been raised at least partially, and its action is to detain the hammer in the vicinity of the sounding-wire so long as the key is receiving the quickly-repeated partial strokes.

I prefer to let the intermediate portion of the spring rest in a groove, *e*, in the bunter in the manner illustrated, as the bunter thus acts to some extent to confine the movement of the spring to a single vertical plane.

It will be noticed that in this invention the spring is not called into action until the key has nearly reached the bottom of its dip, so that it has no tendency to harden the first part of the stroke. It is also very accessible for repairs or adjustment.

I claim—

1. In a piano-forte action, the combination, with the hammer and the back-catch, of a spring, F, borne by the hammer and having contact with the catch at the latter part of the key-stroke, substantially as set forth.

2. In a piano-forte action, the combination, with the hammer, the butt, and the back-catch, of a spring, F, secured to the butt and contacting with the catch at the latter part of the stroke, substantially as set forth.

3. In a piano-forte action, the combination, with the hammer, the butt, the bunter, and the back-catch, of the spring secured to the butt resting upon the bunter and striking the catch, substantially as set forth.

STILLWELL R. HARCOURT.

Witnesses:

H. M. MUNDAY,
JOHN W. MUNDAY.