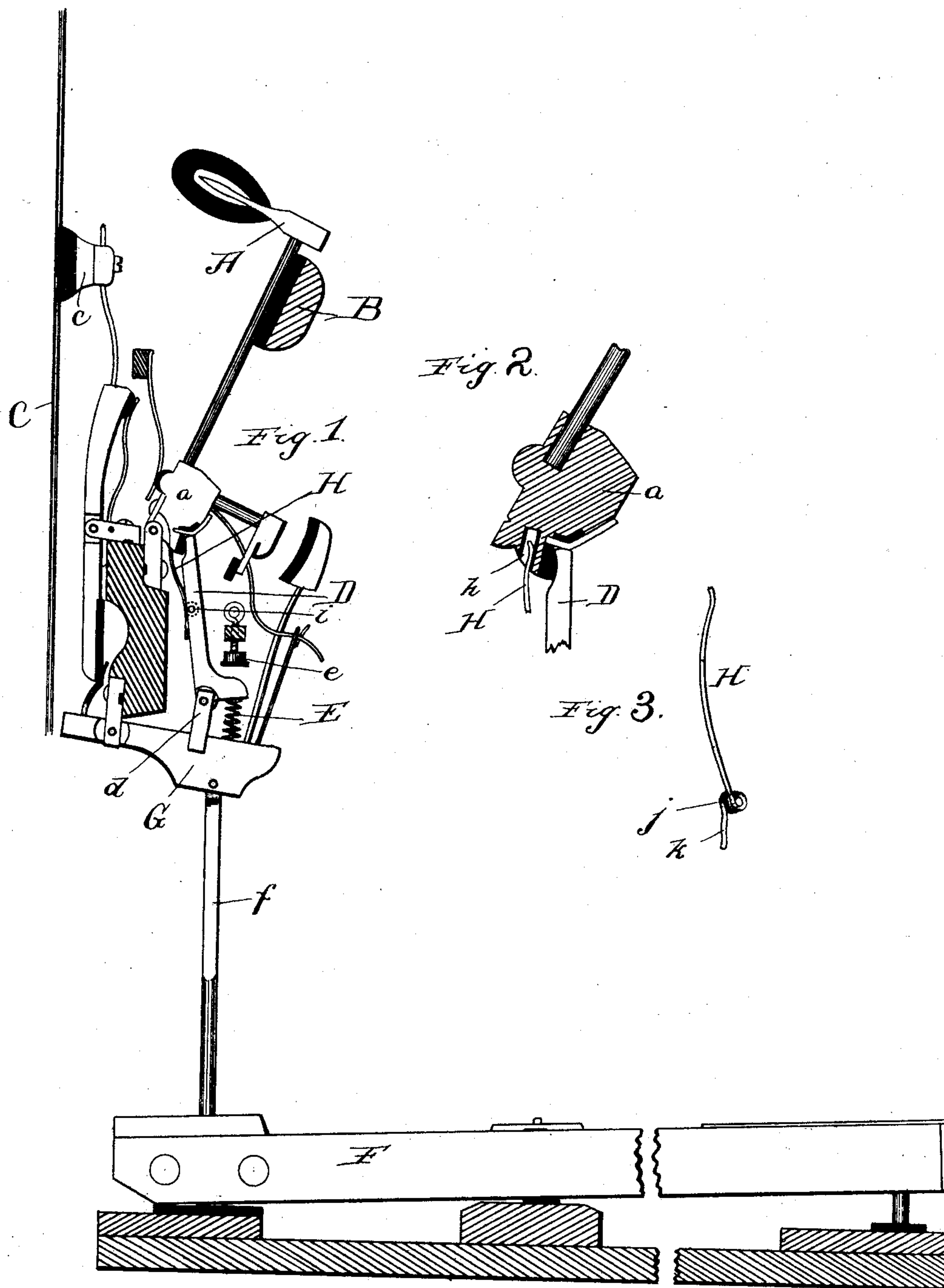


(No Model.)

S. HARCOURT.
PIANO FORTE ACTION.

No. 371,578.

Patented Oct. 18, 1887.



Witnesses:
 Geo. C. Curtis.
 A. M. Munday.

Inventor:
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UNITED STATES PATENT OFFICE.

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

PIANO-FORTE ACTION.

SPECIFICATION forming part of Letters Patent No. 371,578, dated October 18, 1887.

Application filed May 31, 1887. Serial No. 239,809. (No model.)

To all whom it may concern:

Be it known that I, STILLWELL HARCOURT, a citizen of the United States, residing at 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.

To obtain a quick-repeating action by the hammer, which will insure the sounding of the string with partial successive strokes of the key, such as are imparted in trilling, without preventing the escape of the jack from under the butt, when that is necessary, is the object of this invention, and I accomplish such object by the use of a light wire spring extending from the butt of the hammer to the jack, with one end secured in each. This spring, while it does not prevent the separation of the butt and jack, yet brings them together again quickly, and when the key is repeatedly struck between the upper and lower planes of its dip, as is the case in trilling, the spring maintains the proper relative position of the butt and jack to insure striking by the hammer with every impulse given to the key. All this will be better understood from the description given below when considered with reference to the accompanying drawings, in which—

Figure 1 is a vertical section of a piano action to which my improvement has been applied. Fig. 2 is an enlarged section showing the manner of securing the spring in the hammer-butt, and Fig. 3 is a view of the spring detached.

In said drawings, A represents the hammer; a, the butt thereof; B, the hammer-rest rail; C, the string; c, the damper; D, the jack; d, the support in which the heel of the jack is pivoted; E, the spring under the toe of the jack; e, the stationary stop which forces the jack away from the hammer-butt by contact with the toe of the jack; F, the key; f, the vertical rod, and G the vibrating lever connecting the jack and key. All these, as well as other parts shown but not specifically designated, are of the ordinary construction.

The spring, which forms the subject-matter of the invention, is shown at H. Its upper end is loosely inserted in a bushed opening, h, in the back side of the hammer-butt, assuming

that the jack in its escape moves to the front side thereof, (see Fig. 2,) and its lower end is secured to the corresponding side of the jack, about midway of the latter, by means of a bushed pin, i, passing through the jack and through a coil, j, in the spring, the jack being properly recessed to receive the coil. The lower leg, k, of the spring bears upon the surface of the jack. I do not wish, however, to be limited to this particular method of securing the spring to the parts upon which it acts, except that it is essential that the spring be sufficiently long between the point where it is secured to the jack and the point where it bears upon the butt to give it the character required for the work it performs—that is to say, said spring should yield very readily at the start of the jack's escape, so as not to interfere with that operation, and it should at the same time possess all the strength requisite to quicken the jack's return to position under the butt. A short spring would be apt to seriously interfere with and often wholly prevent the jack's escape, even if made of the lightest wire capable of any useful effect in hastening the return. It will be seen that this spring, which is preferably of light wire, will tend with gentle pressure to keep the butt and jack in operative position at all times when they are not positively separated by the stop e, and hence secures quick-repeating action by the hammer under successive strokes of the key.

I am aware that various methods have been adopted to secure the same end which I accomplish by my invention; but the means used by me are very different and much simpler than those heretofore employed.

I claim—

In combination with a hammer and jack of a piano-forte action, a spring, H, let into the back side of the hammer-butt and secured upon the same side of the jack, about midway of the latter, whereby said spring is prevented from interfering with the escape of the jack while it is enabled to quicken its return, substantially as specified.

STILLWELL HARCOURT.

Witnesses:

H. M. MUNDAY,
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