No. 788,482. PATENTED APR. 25, 1905.

F. A. LINGSCH.

PIANOFORTE ACTION.

APPLICATION FILED AUG. 8, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

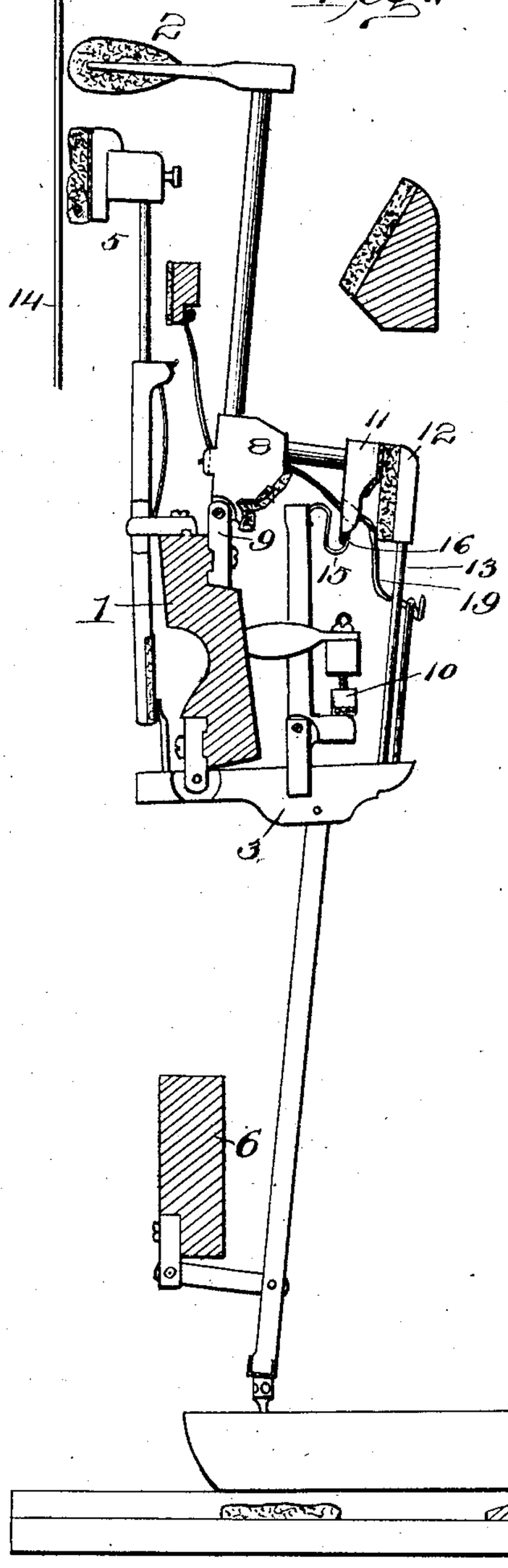
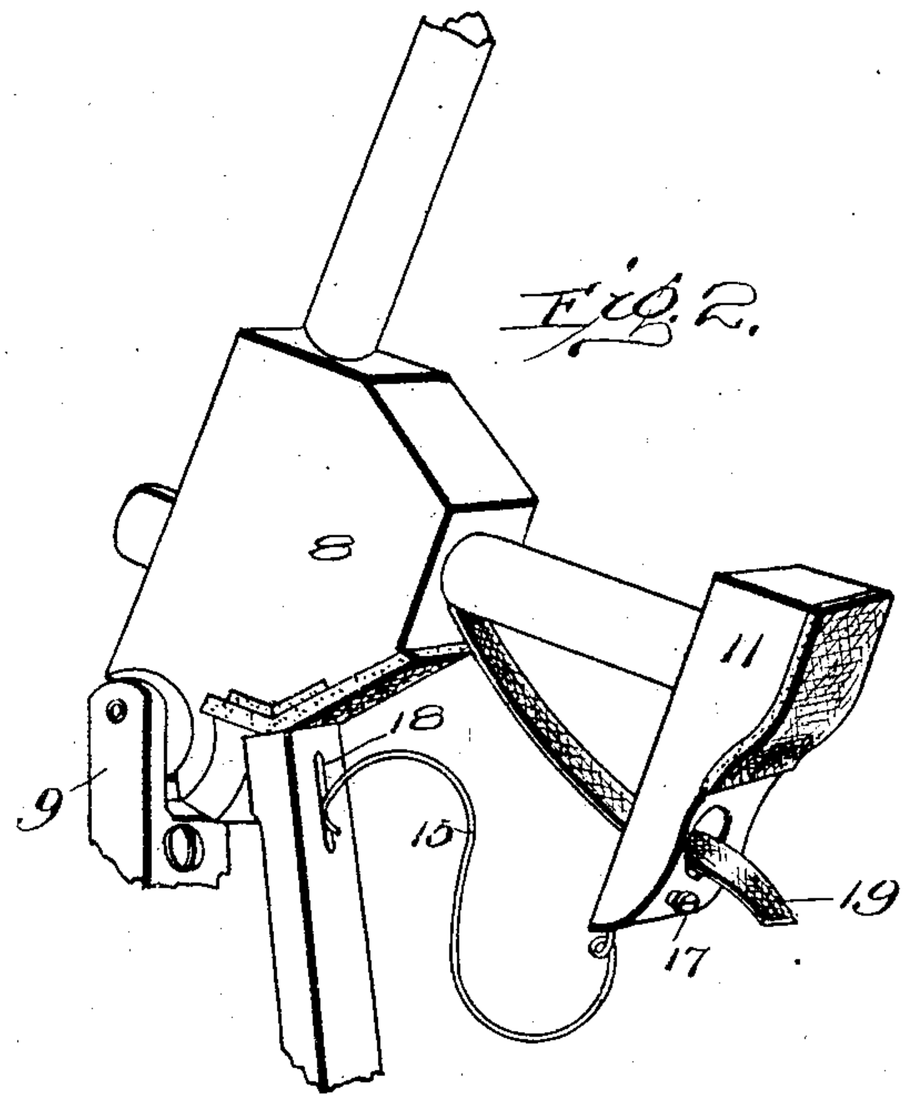


Fig. 2.



Witnesses
J. M. Fowler Jr.
Florence Mapes Patrick

Inventor
Frederick Albert Lingsch
By Mason, Fenwick & Lawrence
his Attorneys

No. 788,482. PATENTED APR. 25, 1905.

F. A. LINGSCH.

PIANOFORTE ACTION.

APPLICATION FILED AUG. 8, 1904.

2 SHEETS—SHEET 2.

Fig. 3.

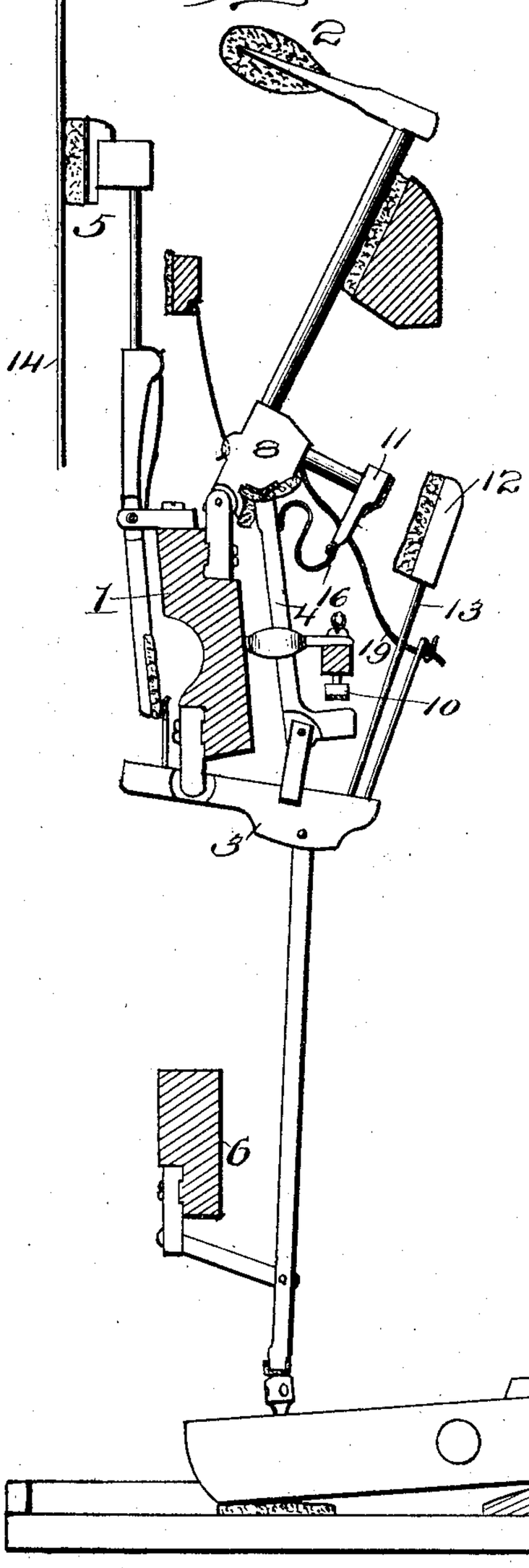


Fig. 4.

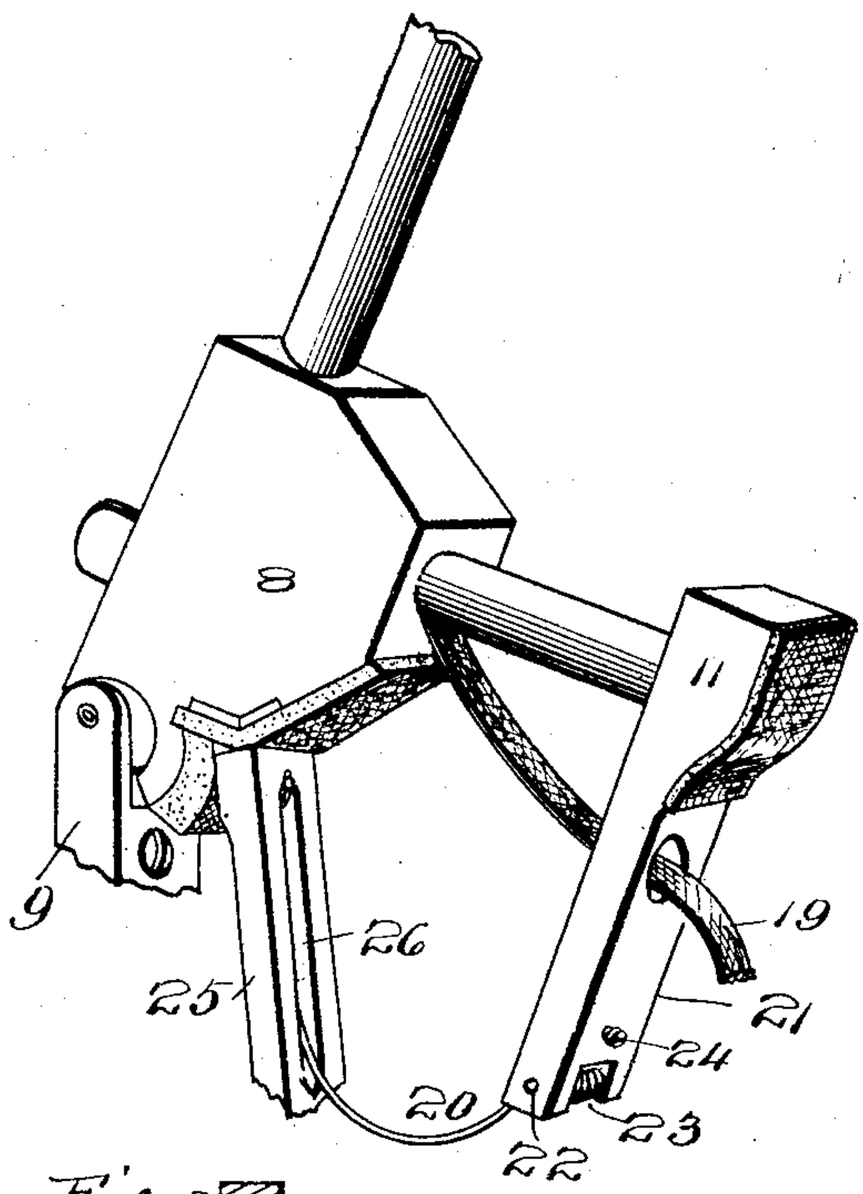
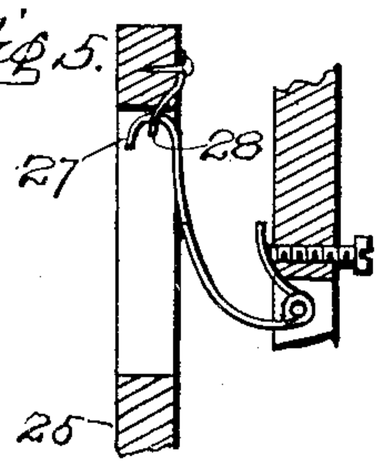


Fig. 5.



Witnesses

J. M. Fowler Jr.

Florence Mapes Patrick

Inventor

Frederick Albert Lingsch

By Mason, Fenwick & Lawrence

his Attorneys

No. 788,482. Patented April 25, 1905.

UNITED STATES PATENT OFFICE.

FREDERICK ALBERT LINGSCH, OF VAN NEST, NEW YORK.

PIANOFORTE-ACTION.

SPECIFICATION forming part of Letters Patent No. 788,482, dated April 25, 1905.

Application filed August 8, 1904. Serial No. 219,961.

To all whom it may concern:

Be it known that I, FREDERICK ALBERT LINGSCH, a citizen of the United States, residing at Van Nest, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Pianoforte-Actions; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in pianoforte-actions, and particularly to actions for upright pianos; and it has for its object the provision of a pianoforte-action for upright pianos which will be capable of the repeating action which is common to grand-pianoforte actions.

The invention consists in certain novel constructions, combinations, and arrangements of parts, as will be fully described and claimed.

In the accompanying drawings, Figure 1 is a vertical sectional view through the mechanism of a pianoforte-action, the action rails and supports being shown in section, while the parts of one member of the action are shown in elevation. Fig. 2 is an enlarged detail perspective view of the repeating mechanism constituting an important feature of the present invention. Fig. 3 is a vertical sectional view through a pianoforte-action, similar to Fig. 1, but showing the hammer in a retracted position. Fig. 4 is an enlarged perspective view of the repeating action, showing a different manner of connecting the same with adjoining parts; and Fig. 5 is a detail sectional view further illustrating said latter form of the device.

It is important in a piano-action that provision is made for a rapid repeating action, and the present invention contemplates a mechanism which is capable of providing an upright-pianoforte action with a repeating mechanism as efficient as the repeating mechanism of the grand pianoforte.

In the drawings I have shown my invention as applied to the parts of a pianoforte-action adapted for an upright piano.

In the illustration, 1 indicates the large rail of the piano-action, upon which is mounted in the usual way a hammer 2, a whip 3, carrying a jack 4, a damper 5, and the usual adjacent parts. In the illustration also a small action-rail 6 is shown and the usual piano-key 7. The hammer 2 is constructed in the usual manner and is provided with an operating hammer-butt 8, which is pivotally attached to the rail 1 by the flange 9. The lower edge of the butt is shouldered and provided with felt bearing-surfaces in the usual manner and is engaged by the upper end of the jack 4. The jack 4 is pivotally mounted upon the whip 3, and its lower end engages the regulating or escapement screw 10, so that the upper end of the jack is pulled away from its engagement with the lower end of the butt 8, so as to permit the hammer to rebound after having struck the strings. The hammer-butt 8 is provided with a counter check or bumper 11, which is engaged by the usual hammer-check 12, carried by a stem or standard 13, secured to the whip. An important feature of the invention is the manner of connecting the counter check or bumper with the upper end of the jack 4, the construction being such that the actuating end of the jack is returned to its position beneath the hammer-butt 8 as rapidly as the hammer is retracted and as rapidly as it may be desired to operate the hammer upon the strings 14 of the instrument. This mechanism consists in a spring 15, which is secured at one end to the lower portion of the counter-check 11, while its other end bears against the upper free end of the jack 4. The spring 15 is a light and delicate one and yet is of sufficient strength to move the upper end of the jack instantly into its position beneath the hammer-butt. The spring 15, as shown in Figs. 1, 2, and 3, is formed with a coiled portion 16, which adds to the resiliency of the spring. The end of the spring adjacent to the coiled portion 16 is so mounted in the counter-check that it may be engaged by an adjusting-screw 17. By turning the screw against the end of the spring the said end may be forced toward the jack and a greater tension will be exerted upon the end of the jack. The free end of the spring 15 is bent in such a manner that it may engage an elongated groove-bearing 18,

formed in the face of the jack 4. The groove-bearing 18 is made of sufficient length to permit of the movement of the jack with respect to the spring without the liability of the spring becoming disengaged from the said jack. As shown in Figs. 1, 2, and 3, the spring may be made approximately S shape in side elevation.

The mounting of the spring 15 upon the end of the counter-check does not interfere with the usual connection of the tape 19 of the bridle-check, for the tape passes through an aperture formed in the counter check or bumper and is attached to the upper end of the bridle-spring, as clearly shown in Figs. 1 and 3.

Although I prefer the construction above set forth, it will be evident that the spring for operating the jack may be made slightly different and may be connected at both ends with the adjoining parts without departing from the spirit of the invention and without interfering with the accomplishment of the desired result. As shown in Figs. 4 and 5, the spring 20 is pivotally mounted at the lower end of the counter-check 21, the pivot-pin 22 passing through the coiled portion 23 of the said spring. The end of the spring carried by the counter is engaged by a set-screw 24, so that the tension of the spring may be altered. The spring 20 curves downwardly and then upwardly toward the end of the jack 25. The end of the jack is slotted, as at 26, for a short distance, and the spring 20 projects into said slot and is formed with a hooked end 27, which engages an attaching loop or support 28. This loop 28 is usually made of flexible material and is securely fastened to the end of the jack.

The operation of the two devices described are practically the same. The position of the springs 15 and 20 is such that in the operation of the instrument as soon as a key is depressed and a jack lifted, so as to force its hammer against a string, and the jack has been withdrawn from the butt of the hammer by its engagement with the escapement-screw 10 the spring will immediately act upon the upper end of the jack and when the key is released will next return it under the butt of the hammer a sufficient distance to repeat the stroke, if necessary. In practice the delicate springs 15 and 20 are found to operate practically instantaneously in returning the jack to such a position that it may operate the hammer immediately upon the raising and depressing of its key.

I do not wish to be understood as limiting my invention to the mounting of the jack-springs upon pivots carried by the counter-check, as the end of each spring may be merely embedded in, and thus rigidly secured to, the said counter-check. It is preferred, however, to form the said spring with a coiled portion in its length for giving it a greater resiliency.

The fact that the springs are applied to the upper ends of the jacks affords the said springs the greatest possible leverage upon the jacks for returning them quickly to their positions beneath the hammer-butts. It also follows from this construction that the springs can be of a delicate character without detracting from their quick action upon the jacks. The structure is simple and yet effective and not likely to get out of order.

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

1. A pianoforte-action comprising a hammer, a butt carrying the same and a counter-check secured to the butt, a hammer-actuating jack, a spring secured to the counter-check at one end and engaging the jack adjacent to the hammer-butt for quickly returning the jack to operative position, the said jack being provided with a guiding-groove for engaging the spring.

2. A pianoforte-action comprising a hammer and a counter-check carried thereby, an operating-jack, a spring mounted upon the counter-check at one end and engaging at its other end the jack, and a loop connecting the end of the said spring with the end of the jack.

3. A pianoforte-action comprising a hammer, a counter-check carried thereby, an operating-jack engaging the hammer and provided with a guide-groove near its upper end, a spring carried by the counter-check and a bearing portion formed upon the said spring and engaging the said groove in the jack.

4. A pianoforte-action comprising a hammer, a counter-check carried thereby, an operating-jack engaging the hammer, a spring carried by the counter-check at one end, the said jack being provided with an elongated slot for receiving the other end of the spring, and means mounted in one end of the said slot for engaging the end of the spring.

In testimony whereof I affix my signature in presence of two witnesses.

FREDERICK ALBERT LINGSCH.

Witnesses:
HUGO MOCK,
ROBT. H. HIBBARD.