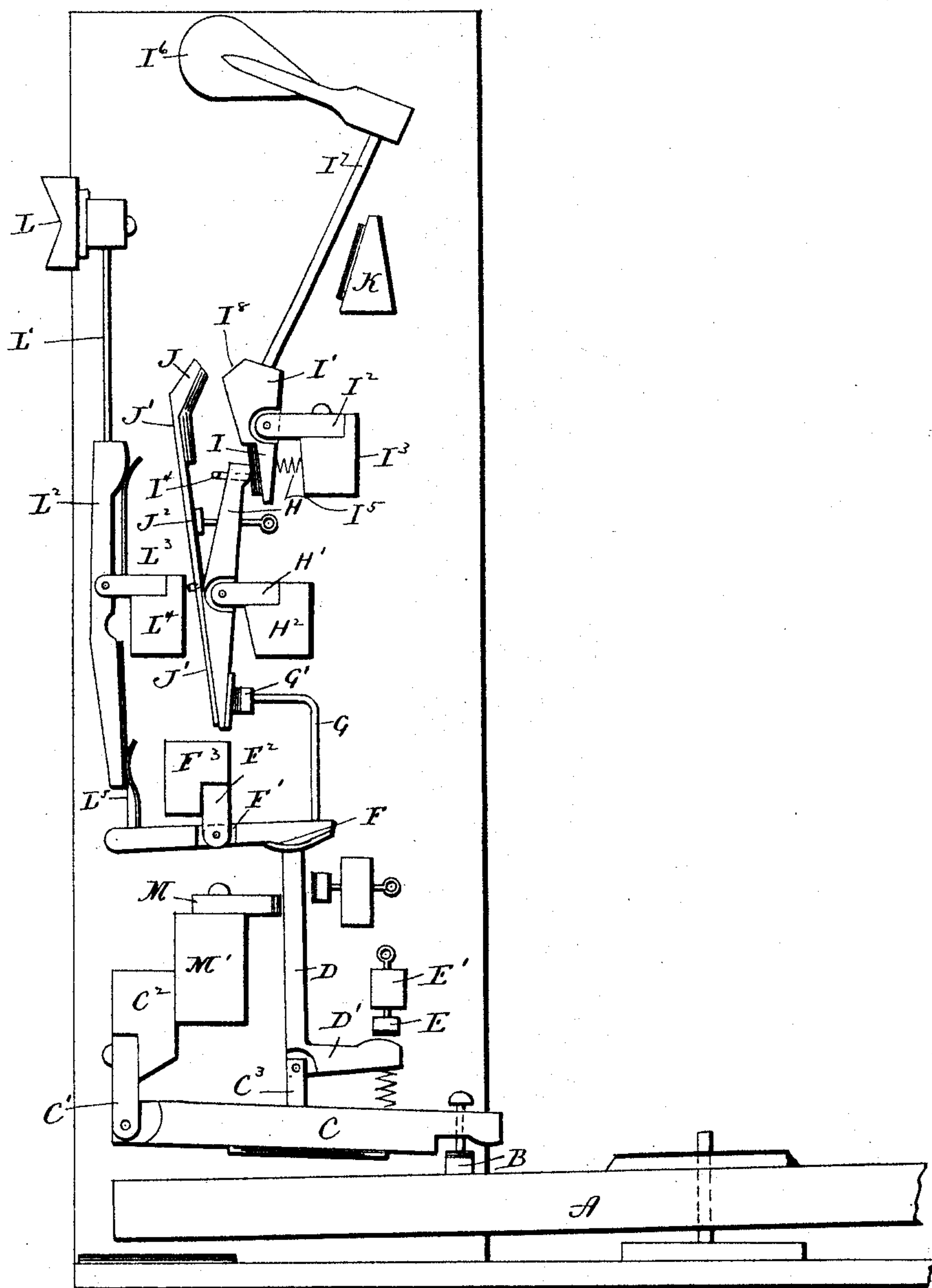


(No Model.)

M. STEINERT.
PIANO ACTION.

No. 585,717.

Patented July 6, 1897.



Witnesses.
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UNITED STATES PATENT OFFICE.

MORRIS STEINERT, OF NEW HAVEN, CONNECTICUT.

PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 585,717, dated July 6, 1897.

Application filed September 21, 1896. Serial No. 606,592. (No model.)

To all whom it may concern:

Be it known that I, MORRIS STEINERT, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Piano-Actions; and I do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents a view in side elevation of one form which an upright-pianoforte action constructed in accordance with my invention may assume.

My invention relates to an improvement in upright-piano actions, the object being to produce a simple action constructed with particular reference to producing crescendo and diminuendo effects between the loud and soft tones, to give the instrument a sympathetic quality, and to enable a performer to express to a degree heretofore impossible his own feelings by adapting the action to convey, so to speak, his nervous touch to the strings, which are caused to respond to and translate it into music.

With these ends in view my invention consists in a piano-action having certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In carrying out my invention I employ a key of any approved construction. This is engaged by a regulating-button B, mounted in the forward end of a jack-lever C, horizontally arranged above the rear end of the key and pivotally secured at its rear end to a flange C', attached to the jack-lever rail C². The said jack-lever is furnished midway of its length with an upwardly-projecting stump C³, in which is pivoted a jack or hopper D, which is furnished at its lower end with a long forwardly-extending tripping-finger D', the throw of which in one direction is controlled by an adjustable button mounted in a rail E'. A spring F, interposed between the lower face of the finger D' and the upper face of the jack-lever C, is employed for returning the jack to its normal position. The upper end of the jack coacts with the obtuse-angled cushioned escapement-face F' of a short horizontally-arranged escapement-lever F', which

is hung about midway of its length in a flange F², secured to the escapement-lever rail F³. The forward end of the escapement-lever F' carries an upwardly-extending vertically-arranged operating-arm G, made of wire bent at about a right angle and provided at its upper end with an adjustable button G', which coacts with the lower end of a vertically-arranged operating-lever H, pivotally hung in a horizontally-arranged flange H', secured to the operating-lever rail H². The upper end of the said operating-lever engages with the cushioned inner face of a finger I, depending from the hammer-arm butt I', the said butt being pivoted in a horizontally-arranged flange I², secured to the hammer-rail I³. A horizontal wire hook I⁴, attached to the finger I aforesaid, forms a loose connection between the same and the upper end of the operating-lever. A spiral spring I⁵, interposed between the said finger and hammer-rail, exerts a constant effort to throw the hammer I⁶ into its retired position.

The hammer-arm I⁷ enters the upper end of the hammer-arm butt I', which is formed with an inclined hammer-check face I⁸, designed to be engaged by a correspondingly-inclined cushioned finger J, located at the upper end of the hammer-check J', formed of a yielding or elastic strip, the lower end of which is secured to the rear face of the lower end of the operating-lever H, which carries an adjustable button J², engaging with the said check for regulating the position of its finger J with respect to the incline I⁸ of the hammer-arm butt I'. Forward of the hammer-arm I', I locate a hammer-rest K of approved construction. A damper L is secured to the upper end of a wire L', mounted in the upper end of a vertically-arranged damper-lever L², hung in a horizontal flange L³, secured to a damper-rail L⁴. The lower end of the lever L² is engaged with a spring L⁵, mounted in the rear end of the escapement-lever F', as clearly shown.

A horizontally-adjustable strip M, having its forward edge cushioned, is arranged just behind the jack D and secured to a rail M' and assists in controlling the action of the said jack D.

I would call particular attention to the fact that in my improved action the movement of

the key by the fingers of the performer is transmitted to the string through an articulated train of parts comprising the key, the jack-lever, the jack, the escapement-lever, the operating-arm, the operating-lever, and the hammer. The articulation of these parts secures a mobility of action which may be compared to the mobility which the wrist and fingers of the hand have on account of the articulation of their bones. Through such means I obtain a sympathetic and what I may call "nervous" action, through which the performer may realize a more perfect expression of his feelings than has before been possible. Then through the coaction of the jack with the obtuse-angled escapement-face of the escapement-lever I avoid the too quick escapement of the hammer, which has always been characteristic of the pianoforte since the time of Cristofori, and, to an extent not heretofore reached, maintain control over the hammer. Thus the hammer is thrown against the string by the impulse given to it by the lifting action of the jack on the rear portion of the obtuse-angled escapement-face of the escapement-lever. The jack does not, however, escape from the lever after the hammer has struck the string, but glides over the said face to the forward portion thereof, where it acts to hold the hammer in such close proximity to the string that the same may be struck and influenced by a nervous manipulation of the key while it is still partially depressed, thus securing not only portamento tones full of beauty and feeling, but also enabling the performer to impart wonderful color.

I would have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention. Thus, if desired, I may employ the combination of the key, jack-lever, and jack in grand pianos as well as in upright pianos, the said key, jack-lever, and jack being associated in a grand piano with action parts suitable to instruments of that type.

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

1. In an upright-piano action, the combination with a key, of a jack-lever operated thereby, a jack pivotally mounted in the said

jack-lever, an escapement-lever coacting with the jack and having an obtuse-angled escapement-face, a vertically-arranged operating-lever, connection between the same and the escapement-lever, a hammer, a hammer-arm, and connection between the same and the upper end of the operating-lever.

2. In an upright-piano action, the combination with a key, of a jack-lever operated thereby, a jack pivotally mounted in the said jack-lever and having a forwardly-extending tripping-arm coacting with an adjustable button, a horizontally-arranged escapement-lever having an obtuse-angled escapement-face coacting with the upper end of the jack, an upwardly-extending operating-arm carried by the escapement-lever, a vertically-arranged operating-lever engaging at its lower end with the said arm, and a hammer operated by the upper end of the said operating-lever, substantially as described.

3. In a piano-action, the combination with a key, of a horizontally-arranged jack-lever located above the rear end of the key by which it is operated, and pivotally suspended by its rear end, an adjustable button interposed between the key and the forward end of the jack-lever, a jack pivotally mounted in the jack-lever between its rear end and the said button, an escapement-lever coacting with the jack and having an obtuse-angled escapement-face, a vertically-arranged operating-lever, connection between the same and the escapement-lever, a hammer, and a hammer-arm which is acted upon by the upper end of the operating-lever.

4. In an upright-piano action, the combination with a key, a jack-lever and an escapement-lever, of a vertically-arranged operating-lever, a hammer, a hammer-arm, a hammer-arm butt with which the upper end of the operating-lever is connected and which is formed with a check-face, and a hammer-check secured at its lower end to the said operating-lever, and having its upper end formed for engagement with the inclined check-face of the hammer-arm butt.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

MORRIS STEINERT.

Witnesses:

FRED. C. EARLE,
LILLIAN D. KELSEY.