



# UNITED STATES PATENT OFFICE.

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## PIANO-ACTION.

No. 880,173.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, CHERUB J. B. SOCIN, a citizen of the United States, and residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Piano-Actions, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

10 This invention relates to piano actions and particularly to what are known as grand piano actions; and the object thereof is to provide an improved mechanism of this class which is simple in construction, positive and 15 regular in operation and by means of which a more perfect tone may be secured than by mechanisms of this class as usually constructed, together with greater ease in operation.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, said drawing being a side view of my improved piano action and showing the stationary transverse parts of the instrument by which the operative 20 parts of the mechanism are supported in section.

In the drawing forming part of this specification, I have shown at *a* the usual base member above which the operative parts of 30 a piano action are mounted and ranging transversely thereof and thereover are stationary bars or rails *a*<sup>2</sup> and *a*<sup>3</sup>, the first of which forms a support for the keys *b* but one of which is shown. The bar or rail *a*<sup>2</sup> is provided with the usual pivot pin *b*<sup>2</sup> which hold 35 the key *b* in place, and beneath the key is placed the usual cushion *b*<sup>3</sup> and the bar or rail *a*<sup>3</sup> is provided with the usual guide pin *b*<sup>4</sup> movable in the key *b* and provided with 40 the usual cushion *b*<sup>5</sup>, and at the rear end of the base member *a* is placed a cushion *a*<sup>4</sup> on which the rear end of the key *b* strikes or rests, all these parts being of the usual construction.

45 The key *b* is provided rearwardly of the bar or rail *a*<sup>2</sup> and in the top thereof with the usual sticker or lifter screw *b*<sup>6</sup> on which is placed the rocking lever *c*, these parts being also of the usual construction and operation.

50 Arranged over the rear end of the rocking lever *c* is the usual flange bar or rail *c*<sup>2</sup> to which is secured the lever flange *c*<sup>3</sup> to the rear end of which the rocking lever *c* is piv-

oted, and said rocking lever is provided centrally thereof with an upright support *c*<sup>4</sup> to 55 which the escapement lever *d* is pivoted.

Passing vertically through the rear end of the escapement lever *d* is the escapement lever regulating screw *d*<sup>2</sup> provided at its lower end with a button *d*<sup>3</sup> adapted to bear on a 60 cushion *d*<sup>4</sup> on the rocking lever *c*, and to the front end of the rocking lever *c* is pivoted the jack *e*, the lower end of which is provided with the forwardly directed arm *e*<sup>2</sup> and the upper end of which is provided on its 65 rear side with a cushion *e*<sup>3</sup>.

The forward end of the escapement lever *d* is provided with a forwardly directed nose *d*<sup>5</sup> on the bottom side of which, and rearwardly of the point of said nose, is a shoulder *d*<sup>6</sup>, and 70 below the shoulder *d*<sup>6</sup> and rearwardly thereof is a supplemental shoulder *d*<sup>7</sup>, and the nose *d*<sup>5</sup> is cushioned both on the top and bottom thereof, and the shoulders *d*<sup>6</sup> and *d*<sup>7</sup> are also cushioned with felt or other suitable mate- 75 rial.

Arranged forwardly of and over the jack *e* is the usual stationary transverse rail or bar *f*, to which is secured the flange *f*<sup>2</sup>, to which 80 the hammer stem *g* is pivoted, and the said hammer stem *g* is provided rearwardly of its pivotal connection with the flange *f*<sup>2</sup> with a downwardly directed boss or projection *g*<sup>2</sup> adapted to bear on the cushioned top sur- 85 face of the nose *d*<sup>5</sup> of the escapement lever *d*, and passing upwardly through the front end portion of the hammer stem *g* between the downwardly directed boss or projection *d*<sup>2</sup> and the flange *f*<sup>2</sup> is an escapement regulating screw *g*<sup>3</sup>, the head of which is also adapted to 90 bear on the cushioned top surface of the nose *d*<sup>5</sup> of the escapement lever *d*.

The rear end of the hammer stem *g* is provided with the usual hammer *g*<sup>4</sup> connected with the usual shank member *g*<sup>5</sup> provided 95 with the usual downwardly directed stem *g*<sup>6</sup> adapted to operate in connection with the back stop or catch *h* secured to the rear end of the key *b*.

Between the front end portion of the rock- 100 ing lever *c* and the front end portion of the escapement lever *d* is placed the usual escapement spring *i* having a rearwardly directed loop *i*<sup>2</sup> which passes around a pin *i*<sup>3</sup> in the support *c*<sup>4</sup> and a downwardly and for- 105 wardly directed arm *i*<sup>4</sup> which is connected



with the base portion of the jack  $e$  in the usual manner, and an upwardly and forwardly directed arm  $i^5$  which bears on the bottom of the front end portion of the escapement lever  $d$ , the said escapement spring  $i$ , in its construction and operation, being the same as in other apparatus of this class.

Arranged forwardly of and above the front end portion of the rocking lever  $c$  is the usual transverse stationary regulating bar or rail  $j$  through which is passed the regulating screw  $j^2$  provided at its lower end with a cushioned button  $j^3$  in connection with which the forwardly directed part  $e^2$  of the jack  $e$  operates.

The flange bar or rail  $c^2$  is provided with a cushion  $k$  on which the hammer stem  $g$  normally rests, and the pivotal connections at  $m$  are all made by means of pins which pass through holes bushed with cloth or similar material in the usual manner.

Although, I have shown and described but one key  $b$  and one set of the piano action mechanism, it will be understood that a similar mechanism is employed in connection with each key, and the essential features of my improvement consist in the escapement mechanism comprising the form of the front end portion of the escapement lever  $d$ , the upper end portion of the jack  $e$ , the downwardly directed boss or projection  $g^2$  of the hammer stem  $g$  and the regulating escapement screw  $g^3$  placed in the hammer stem instead of in the support to which said stem is pivoted.

In the operation of my improved action, when the key  $b$  is struck, the usual movement of the separate parts of the action take place, except that the jack  $e$  moves forwardly and the nose  $d^5$  of the lever  $d$  bears thereon, and the shoulder  $d^6$  at the front end of the lever  $d$  holds the jack in this position till the pressure on the key is removed, when the said parts drop back into the position shown in the drawing.

It will be understood that the movement of these parts may be regulated to some extent by the screw  $g^3$  and by my improvement I avoid passing the jack  $e$  through the front end portion of the lever  $d$  as is customary in actions of this class as usually constructed, and the mounting of the screw  $g^3$  in the front end portion of the hammer stem provide for a better regulation of the movement of the various parts than is possible when said

screw is passed through the support  $f^2$  of said stem.

In my improvement the cushion  $k$  employed in connection with the bar or rail  $c^2$  and on which the hammer stem  $g$  normally rests, is a continuous cushion and extends transversely through the instrument and all the hammer stems normally rest thereon.

By means of my improved escapement mechanism I secure a more positive, regular and uniform action, and a better tone, and these results are accomplished with a minimum of effort in the manipulation of the keys.

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

1. In a piano action, a rocking lever, an upright support connected therewith, an escapement lever pivoted to said support, a jack pivoted to the end of the rocking lever, a pivoted hammer stem and an escapement spring, the front of the escapement lever being provided with a forwardly directed nose on the bottom of which is a shoulder, below and rearwardly of which is another shoulder in connection with which shoulders the upper end of the jack operates.

2. In a piano action, a rocking lever, an upright support connected therewith, an escapement lever pivoted to said support, a jack pivoted to the end of the rocking lever, a pivoted hammer stem and an escapement spring, the front of the escapement lever being provided with a forwardly directed nose on the bottom of which is a shoulder below and rearwardly of which is another shoulder in connection with which shoulders the upper end of the jack operates, the hammer stem being also provided with a downwardly directed boss or projection adapted to bear on the top surface of the nose of the escapement lever and forwardly thereof with a regulating screw also adapted to operate in connection with the nose of the escapement lever.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 6th day of May 1907.

CHERUB J. B. SOCIN.

Witnesses:

C. E. MULREANY,  
A. WORDEN GIBBS.