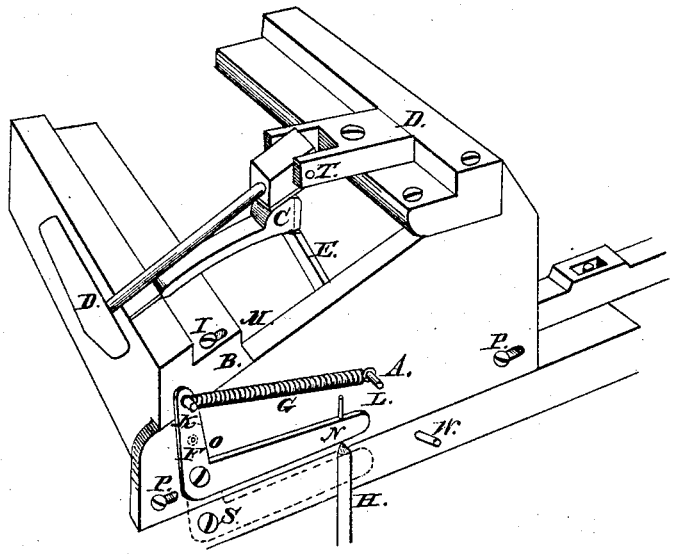
D. B. Nerhall,

Piano Attachment,

No. 2,330, Patented Nov. 3, 1841.



UNITED STATES PATENT OFFICE.

DANIEL B. NEWHALL, OF BOSTON, MASSACHUSETTS.

CONSTRUCTION OF PIANOFORTES.

Specification of Letters Patent No. 2,330, dated November 3, 1841.

To all whom it may concern:

Be it known that I, DANIEL B. NEWHALL, of the city of Boston, county of Suffolk, and State of Massachusetts, have invented a new Improvement for Producing a very Soft, Clear, and Beautiful Tone on the Pianoforte, and do hereby declare that the following is an exact description of my invented improvements, reference being had to the annexed drawings, making a part of my specification, in which—

A, represents a cheek, B one end of the under hammer rail. C, an under hammer attached to the rail. D, D, the upper hammer and upper hammer rail. E, top of the fly jack as it takes hold of the under hammer. F, N, an elbow lever. G, a longitudinal spiral spring. H, a connecting rod between the end of the lever and the soft pedal. I a screw which holds the under hammer rail upon the edge of the cheek. K a pin on which the upper end of the lever is swiveled to the end of the under hammer rail, to which is hooked one end of the spring G. L another pin made fast in the cheek A, to which is hooked the other end of the spring G. P, P, screws which make the cheek fast to the bottom of the key board. S, W, a section of the edge of the bottom of the case.

The whole drawings represent an oblique perspective view of one end of the action, and it is to be understood that the other end is similar to it. They likewise represent the ends of the rails as they are attached to the cheek.

The nature of my invention consists in making such alterations and additions to the action of the piano forte, as shall qualify the instrument to produce a soft and clear piano or pianissimo tone, freed from all impediments and imperfections, which result from other methods designed to produce the same.

To enable persons skilled in the art of making piano fortes, to make them, or alter those made, according to my method let them attend to the following described alterations and additions, namely. (1st method.) I elongate the screw hole in the under hammer rail an eighth of an inch, and fit it to the neck of the screw, so that the rail may slide backward and forward freely one eighth of an inch on the neck of the screw as shown at I, and having made a rectangular elbow lever, F, N, I swivel it near the angular point, on the neck of a screw at F, making the screw fast in the face of the cheek A. Then through the upper end of the lever I pass the pin K, and make the inner end of it fast in the end of the under hammer rail B, the outer end projecting beyond the lever; next having made the spiral spring G, I hook one end of it on the pin at K, and the other end on the pin at L. Thus constructed the spring draws the under hammer rail forward toward M until it is checked by the screw I. I in the next place make a small rod H, and place it in a perpendicular position, it is connected to the soft pedal at the bottom and with the end of the lever at the top at N, being articulated on a pin in the end of the rod, and passing up through the lever, the hole is elongated on the upper side of the lever, so that the pin may vibrate in it. The piano or soft tone is produced by pressing down the pedal with the foot. The pedal being a lever of the first order, shoves the rod H upward, the rod shoves the lever N, upward, which gives the top of the perpendicular leg of the lever a horizontal motion backward, and as it is swiveled on a pin at K, fixed in the end of the under hammer rail at B, the under hammer rail is carried backward, until it is checked by the screw I; and the under hammer G, attached to the rail is carried backward to the dotted line at C, this causes the jack at E to escape from the under hammer quicker, and the under hammer to take hold of the shaft of the upper hammer, at a greater distance from its articulating pin T, which lengthens the leverage and shortens the motion of the hammer D, wherefore it strikes the wires with much less force, causing smaller vibrations and softer tones. (2nd method.) I have another method for producing the same effects which is by moving the cheeks forward and backward, which moves the whole action except the jacks, and this I effect by making the following alterations, viz, I elongate the screw holes P, P, in the cheeks, one eighth of an inch, and remove the lever F, N, lower down so as to enter the screw F, into the bottom of the edge of the case S, W, instead of the cheek as shown at S, and I remove the pin K from the end of the under hammer rail, and insert it a little lower down in the cheek,

at the dotted point O, and I shorten the perpendicular rod H so that the leg of the lever N, may be parallel with the bottom of the case S, W, as shown by the dotted lines on the edge of the case, and I detach the end of the spiral spring from the pin L, and hook it on to a pin inserted in the edge of the bottom of the case as at W; the spring being thus applied effects the returning motion of the cheeks; now these alterations being made, the process of operation is the same as described in my first mode; for if the foot presses down the pedal, the rod H, will shove up the lever, and the lever will slide the cheeks backward, moving the whole action backward with it, the jacks excepted; wherefore the jacks escape the under hammers quicker, which shortens the motion of the upper hammer D, so that it strikes the wires with less force, causing smaller vibrations and softer tones.

What I claim as my invention and desire to secure by Letters Patent, is—

The method of varying the points at which the force is applied to the hammer so as to produce at pleasure a piano or pianissimo tone, by means either of an under hammer rail, and hammer made movable as described and operated substantially as set forth; or by making the cheeks movable instead of the hammer rail and operating therein in the same manner so as to produce a similar effect.

In testimony that the above is a true specification of my said invention, I have hereunto set my hand this ninth day of October, in the year of our Lord eighteen hundred and forty one.

D. B. NEWHALL.

Witnesses:
JOHN KNAPP,
JOHN DWIGHT.