

UNITED STATES PATENT OFFICE.

JAMES H. PHELPS, OF SHARON, WISCONSIN.

PIANOFORTE-ACTION.

SPECIFICATION forming part of Letters Patent No. 486,500, dated November 22, 1892.

Application filed April 6, 1892. Serial No. 427,985. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. PHELPS, a citizen of the United States, residing at Sharon, in the county of Walworth and State of Wisconsin, have invented a new and useful Improvement in Pianoforte-Actions, of which the following is a specification.

This invention relates to certain improvements upon the construction of pianoforte-actions set forth in Letters Patent granted to me, No. 465,494, December 22, 1891.

The leading feature of my present improvement relates to the construction of the device by which the levers J of my former construction are supported.

In the drawing I show a vertical cross-section of my improved action.

In said drawing, A may represent one of the strings of the piano; B, the damper; *b*, the damper-bar; B', the spring acting upon the damper-bar; C, the loud-pedal bar, and *c* the arm of wire operating the damper when the key is struck.

D is the pivoted lever supporting the jack N.

E is the sticker, F the key, and *f* the rocking adjusting-lever by which the action of the sticker is regulated.

G is the stationary supporting-bar having in some constructions a connection *g* for holding the sticker. The stickers are provided with horizontally-extending arms H, corresponding to those of my previous construction and formed with recesses *h'*, for the purposes set forth in my said patent. Adjacent to each sticker is a lever J, pivotally supported on a block *j*, supported from the bar G, such lever extending over the arms H and passing between its own sticker and the sticker of the next adjacent key.

k is a spring inserted between each lever J and the supporting-bar, and said levers J have offsets *m* and bevel portions *n*. The damper-bars have the same extensions O shown in my said patent, and a similar rod P is suspended at its ends and at intermediate points upon cranks *p*, pivotally held upon the action-frame by taller blocks *j*, said rod acting to hold the series of levers J against action. M is the buffer for engaging the toe of the jack and

limiting its movement, and L is the block in which the hammer is secured.

So far as I have set forth the construction above it is substantially identical with the construction shown in my said patent.

The supporting-bar G is shown in the patent as supporting the blocks *j* directly; but I prefer to make the bar in separate parts, or, in other words, to support the levers J and their blocks *j* upon a bar separate from the bar G and resting thereon. This I find to be a great convenience, as it enables the adjusting of all the levers J vertically at the same time and also the positioning of them all upon their support before the latter is put into the piano. This cross-bar I illustrate at G', the blocks *j* being secured to it. In order that the bar G' may be correctly positioned to bring the levers J to their proper plane, a filling-piece *g'* is preferably inserted between bars G' and bar G, this filling-piece being of the proper vertical dimensions to insure the result stated. Screws *i* may be passed through the bar G' and the filling-piece into the lower bar and secure them all rigidly together. The ord P, by which all the levers J are held inoperative, is acted upon by a spring *q*, so that its action when pressing upon the levers J may be more certain. This spring has sufficient elasticity to permit the necessary changes in position by the rod P.

I claim—

1. The combination, in a piano-action, of the levers J with supports for said levers, consisting of bar G and a separate bar G', to which the levers are secured and which is itself supported upon said bar G, substantially as specified.

2. The combination, with the series of levers J and their supporting-blocks *j*, of bars G and G' and a filling-piece inserted between said bars, substantially as specified.

3. The combination, with the levers J, of the locking-rod P and the spring acting upon said rod, substantially as specified.

JAMES H. PHELPS.

Witnesses:

GEORGE C. MANSFIELD,
JOS. M. YATES.