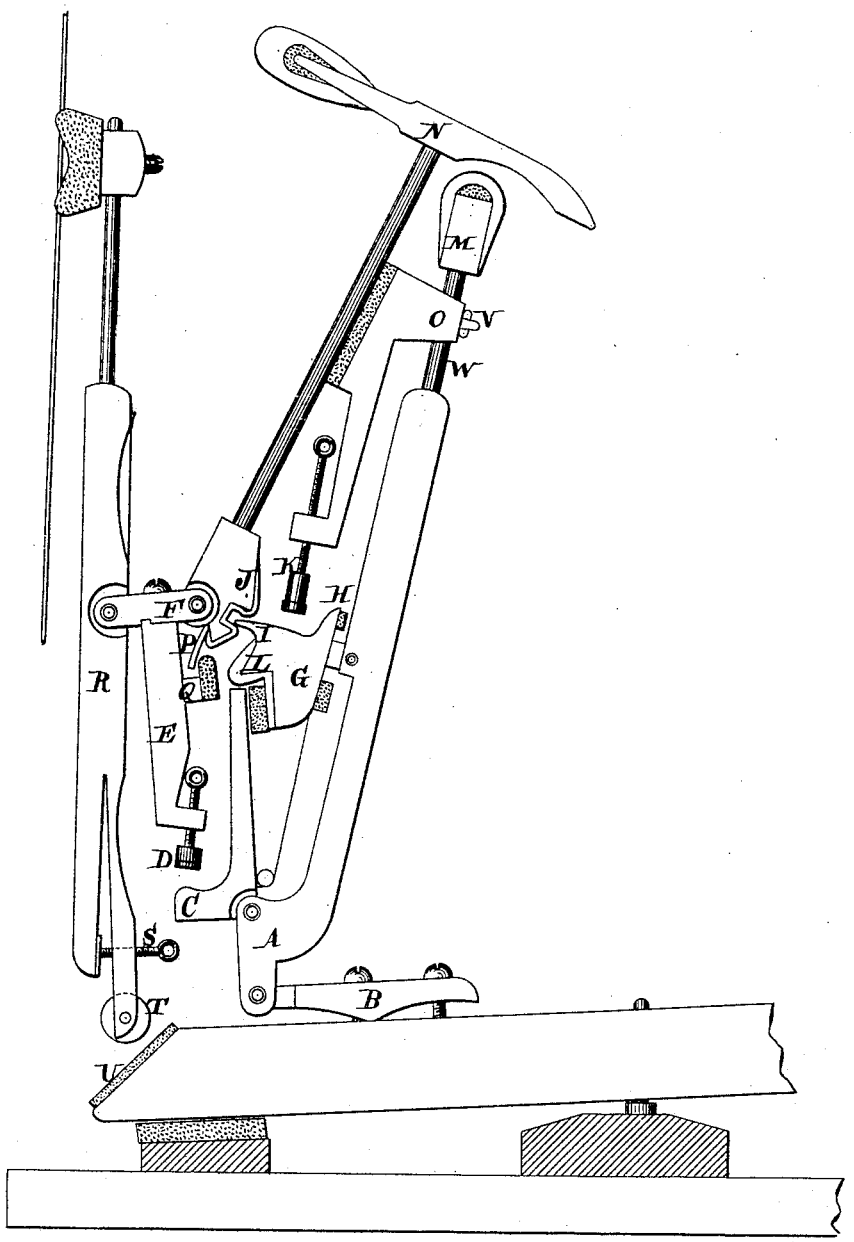
A. H. HASTINGS.

Upright-Piano Actions.

No. 199,154. Patented Jan. 15, 1878.



Witnesses.

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AZARIAH H. HASTINGS, OF NEW YORK, N. Y.

IMPROVEMENT IN UPRIGHT-PIANO ACTIONS.

Specification forming part of Letters Patent No. **199,154**, dated January 15, 1878; application filed June 9, 1877.

To all whom it may concern:

Be it known that I, AZARIAH HORACE HASTINGS, of New York city, county and State of New York, have invented a new and useful Improvement in Upright-Piano Actions, which is fully set forth in the following specification and drawing, which is a side view of the action belonging to one key, showing the back or action end of the key and key-frame.

The front end of the key is like keys now in use.

The object of my invention is to produce a repeating action for upright pianos with the perfection of touch (in repeating) of the grand piano, having less friction and less clumsy character of blow than the upright-piano actions now in use; and it consists in attaching to the key a standard, to which the jack, repeating-lever, and hammer-catch are attached, and in a peculiar construction of repeating-lever and notch in hammer-butt, and in a detachable slide-center for the catch or standard-wire to work in; also, a flexible spring arranged in hammer-butt, and an adjustable anti-friction damper-lever.

A in the drawing represents a standard attached to the key, with a bed-piece, B, and center, in the ordinary way of attaching a jack to a key. Above this bed-center, at a distance corresponding with any given height of piano, I center the jack C, with its heel turned back in a position to operate against a regulating-button, D, in the lower part of the hammer-rail E. Nearly opposite the hammer-center F I center the repeating-lever G into the standard A. This lever is constructed with a projection, H, above the center, to rest against the standard A, to check the lever from rising beyond the desired height, so that there is no lost motion at the end of the jack C. The end opposite the standard I form into a hook shape, I, which works in a notch made in the hammer-butt J. This hook and notch are made to have a little loose motion, so as to allow the hammer to travel a little beyond the stop of the lever against the regulating-button K, but not to escape from the notch in butt J.

It is easy to see that the combination of notch in hammer-butt J, hook I, and stop H, and repeating-lever G and standard A, attached to the key by the bed B, does away with the frail bridle arrangement in uprights now in use, and accomplishes its work with a certainty, as the key cannot go back without bringing the hammer back.

Under the hook I, I arrange the notch for the top end of the jack C to work in.

One spring may be used to work the jack and repeating-lever, as shown in drawing; or each may have a spring.

In the upper end of the standard A, I attach a wire, which serves as a guide to the standard in its travels. On the top end of this wire or rod W, I screw the catch M, to operate on the lower side of the tail end of the hammer N. By this arrangement the hammer catches firmly, like the grand, and has much less leverage-power against the catch than the uprights now in use. This wire I attach to the hammer-rest rail O, in a manner to slide up and down freely, and so that it can be removed readily, for the purpose of taking out the keys and regulating.

In the lower side of the hammer-rest rail O, I attach a regulating-button, K, to work on the top of the repeating-lever G, to check the power of the spring from the hammer when the jack escapes from its notch, so that the hammer is not held against the string while the key is down.

I arrange a spring, P, in the butt of the hammer, at the bottom, near the center, to make the hammer more lively in returning to its normal position. As its power is only needed at the upper half of its travel, I arrange it to swing free until the hammer is half-way up, when the lower end comes against a stop, Q, which is arranged in position for it. In order to make it flexible enough, I make it spiral in its full length.

I make the damper-lever R with a slit in the lower end, which runs up about three inches, and at the upper end of the slit I thin out the front section, so as to make a spring of it, and near the lower end I turn in a screw, S, through the front or spring section, allowing the end to rest against the back section. Turning the screw in it springs the front section forward.

By this arrangement the travel of the damper

can be regulated. The same effect can be produced by a plan of blocking up between the two sections without using the screw.

I cut a slit in the lower end of the spring-section, in which I put a friction-roller, T, to work on an inclined plane, U, on the end of the key.

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

1. In upright-piano actions, the standard A, provided with the jack C and the repeating-lever G, both pivoted to said standard, substantially as described.

2. The standard A, having the repeating-lever G, provided with the hook I, in combination with the notched hammer-butt J, as set forth.

3. The standard A, having rod W and check M, in combination with the rail O, having detachable center V, as described.

4. The spring P in hammer-butt J, in combination with rail E, having stop Q, substantially as described.

5. The damper-lever R, having friction-roller T, in combination with key provided with inclined plane U, as set forth.

6. The damper-lever R, having spring provided with regulating-screw S and roller T, substantially as described.

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Witnesses:
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