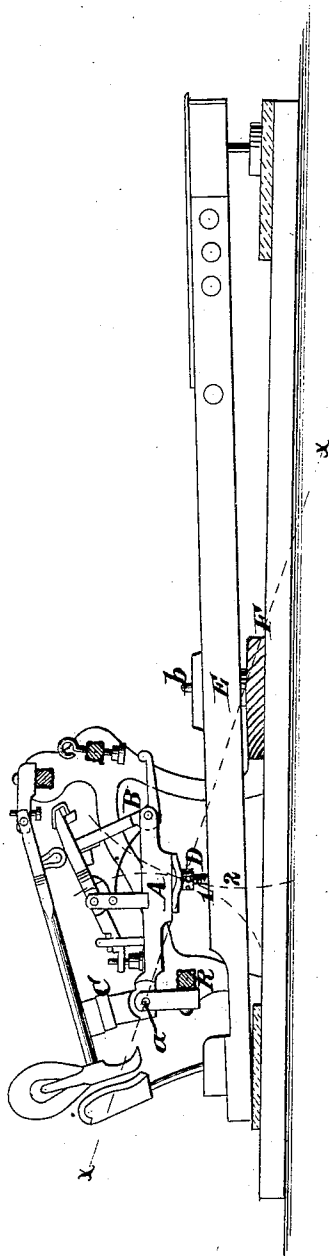


C. F. T. STEINWAY.

GRAND PIANO-FORTE ACTION.

No. 170,645.

Patented Nov. 30, 1875.



Witnesses

Otto Aufeland.
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UNITED STATES PATENT OFFICE.

CHRISTIAN F. T. STEINWAY, OF NEW YORK, N. Y.

IMPROVEMENT IN GRAND PIANO-FORTE ACTIONS.

Specification forming part of Letters Patent No. **170,645**, dated November 30, 1875; application filed October 20, 1875.

To all whom it may concern:

Be it known that I, CHRISTIAN FR. THEODOR STEINWAY, of the city, county, and State of New York, have invented a new and useful Improvement in Grand Piano-Forte Actions, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, which represents a side elevation of my improvement.

This invention relates to a peculiar arrangement of the pilot, relatively to the pivots of the balance-lever and key of a grand piano-forte action; and it consists in so arranging those parts that the bearing-surface of the pilot is situated in the plane of a line drawn through the said pivots of the balance-lever and of the key, whereby, when the key is depressed, the pilot and the balance-lever roll on each other, the top of the pilot being, when the parts are in a state of rest, at the point of intersection of circles whose radii extend from said pivots to the pilot, respectively, and by this means friction between the pilot and the balance-lever is considerably reduced. The pilot has a screw-shank, whereby it is fastened to the key and rendered adjustable thereon.

In the drawing, the letter A designates the balance-lever of a piano-forte action, having its fulcrum in a pivot, *a*, which is supported from the hammer-rail R. The balance-lever carries at one end the hopper B, and at its other end, over the pivot *a*, is the hammer-rest C, which, in this example, forms one piece with the balance-lever. The letter D designates the pilot, which rises from the key and supports the balance-lever. E is one of the piano-keys, which is arranged on a pivot, *b*, in the ordinary manner. The pilot D is fastened to the key E, so that it is stationary thereon, and the shank of the pilot has a screw-thread for the purpose of fastening it, and for

the purpose of making it adjustable, the object of which I will describe hereinafter.

The pilot D is so adjusted that its top or bearing surface is situated in the plane of a line drawn through the pivot *a* of the balance-lever and the pivot *b* of the key, at the point where the key rests on the board F, as indicated by the line *xx* in the drawing.

By thus arranging the pilot D it and the balance-lever A are caused to move in two opposite circles described from the pivots *a* and *b*, respectively, when the key E is touched, so as to raise its rear end. The circles which I have just referred to are indicated by lines 1 and 2.

The balance lever and pivot roll, so to say, on each other, when the parts are moved, and by reason thereof very little friction, if any, is produced between the pilot and the balance-lever.

By making the pilot D adjustable I am enabled to bring it in the plane of the line *xx* with extreme facility and exactness.

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

1. The screw-threaded pilot D, key E, and balance-lever A, combined and arranged to operate substantially as described.

2. The adjustable pilot D, combined and arranged to operate with the pivot-pin of the key E, and the pivot *a* of the balance-lever A of a piano-forte action, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of October, 1875.

C. F. TH. STEINWAY.

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.