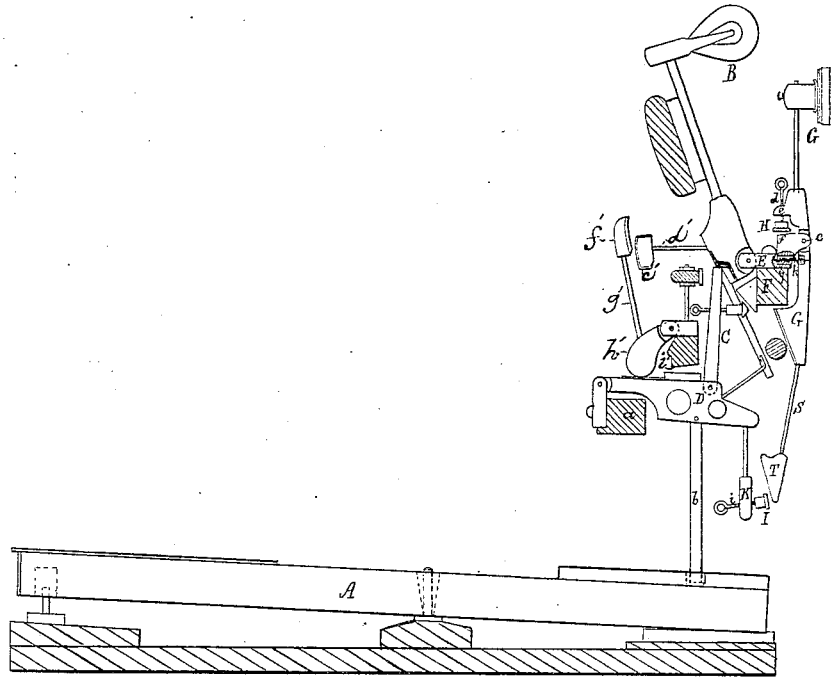
G. W. NEILL.

Action for Upright Pianos.

No. 208,328. Patented Sept. 24, 1878.



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UNITED STATES PATENT OFFICE.

GEORGE W. NEILL, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN ACTIONS FOR UPRIGHT PIANOS.

Specification forming part of Letters Patent No. **208,328**, dated September 24, 1878; application filed July 1, 1878.

To all whom it may concern:

Be it known that I, GEORGE W. NEILL, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in the Actions of Upright Piano-Fortes; and do hereby declare the same to be described in the following specification and represented in the accompanying drawing, which is a side view of an action provided with my improvement.

My invention relates to or consists in, first, the damper-operative button-arm, as supported by and extended down from the pivoted arm supporting the jack or fly; second, the damper-lever or the lower arm thereof, provided with a wedge-shaped bearing or inclined plane, in combination with the damper-operative button-arm extended directly from the fly or jack supporting pivoted arm, all being essentially as hereinafter explained and as represented.

In such drawing, A denotes the key; B, the hammer; C, the jack or fly, and D the bed or supporting-arm of the latter. This bed is pivoted to a stationary rest or bar, *a*, the fly being hinged to the bed at its front part. Such bed rests on the top of a push-rod, *b*, which, at its lower end, is stepped upon the key.

The fulcrum-supporter of the hammer and the damper is shown at E as fastened down upon a rail, F, and projecting in opposite directions beyond such. The damper G, pivoted to the said supporter, as shown at *c*, has an adjustable button, H, arranged directly over the supporter, the screw-stem *d* of such button being arranged vertically, or thereabout, and screwed through a projection, *e*, from the damper. The supporter has a back stop or abutment, *f*, arranged as shown, for the button to bring up against. Furthermore, there is within the supporter E a cylindrical or other proper-shaped chamber, *g*, which is open at its rear end. Within this chamber there is placed a small helical spring, *h*, one end of which is fastened to the supporter and the other to the damper. This spring is to force the damper up to the string. There extends down from the tail of the damper a metallic rod, S, which is screwed or firmly fixed in such tail. Fixed to the rod S, at its lower end, is a wooden bearing or wedge-shaped piece or inclined plane, T, having in rear of it, as shown, an adjustable button, I, whose stem *i* screws into and through an arm, K, extending downward from the pivoted fly-supporting arm D. On the arm D being forced upward when the key is struck, the button I will be pressed against the wedge-shaped bearing or piece T, whereby the damper will be moved away from the string.

By having the adjustable button-arm K projected directly from the movable arm or fly-supporter D, the action is much simplified, in comparison to what it is when the button-arm is pivoted to a rail or bar and provided with an auxiliary arm to extend from it and rest on the key near its rear end, as is represented in the United States Patent No. 204,752, granted to me, and dated June 11, 1878. In this action the pivotal block of the hammer is arranged about directly over the free end of the pivotal arm D, and is provided with an arm, *d'*, and head *c'* thereto, to act with the back catch *f'*, supported by a wire, *g'*, extending upward from a stationary arm, *h'*, pivoted to a stationary bar, *i'*, and resting on and being separate from the arm D. In consequence of such arrangement of the hammer-hinge block and employment of the arm *h'* with the arm D, the action is adapted to be used with a string arranged vertically. All this, however, is found in the action represented in my said Patent No. 204,752, also in Patent No. 197,526, granted to me.

In order, in this action, to support the damper-operative button indirectly by the arm D, it becomes necessary to have to the screw-stem of such button the arm K, extending downward directly from the said arm D. Nothing of the kind is found in the action represented in the United States Patent No. 137,377, where the damper-button stem extends upward directly from and rests upon the pivotal arm, and slides through a stationary bar in no way connected to the said pivotal arm. With the action shown in the said patent, the string is, of necessity, inclined, and not vertical, as in my action, and the hammer-hinge block is, of necessity, disposed over the middle of the pivotal arm.

My invention differs from any thus shown in the United States Patent No. 172,620, inasmuch as there is to the lever G thereof a

simple arm, *n*, extending upward, without an adjustable button, such arm alone serving to actuate the damper-lever during an upward movement of the longer arm of the said lever G.

The piece T, instead of being wedge-shaped and arranged as shown, may be a straight piece of wood, or it may be dispensed with, and the rod S may be extended down so as to come directly in front of the button I. When, however, the piece T is wedge-shaped, or has its rear edge inclined to the front edge, as represented, it co-operates with the button to better advantage in effecting the movement of the damper away from the string.

I claim as my invention as follows, viz:

1. The damper-operative button-stem-supporting arm K, as supported by and extending down from the pivotal arm D of the jack or fly, and arranged with the damper rod or arm S, as set forth.

2. The damper lever or arm S, provided with the wedge-shaped bearing or inclined piece T, in combination with the damper-operative button-stem-supporting arm K, extended from the fly-sustaining pivotal arm D, the botton-stem being screwed into and through the arm K, and all being in other respects substantially as shown and described.

3. In a piano-forte action, the hammer-fly-elevating arm D, provided with the separate back-stop lifter *h'*, arranged over it, as set forth, and also with the damper-operative button-stem-supporting arm K, extending down from it, (the said arm D,) all being arranged and to operate substantially as set forth.

GEO. W. NEILL.

Witnesses:
R. H. EDDY,
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