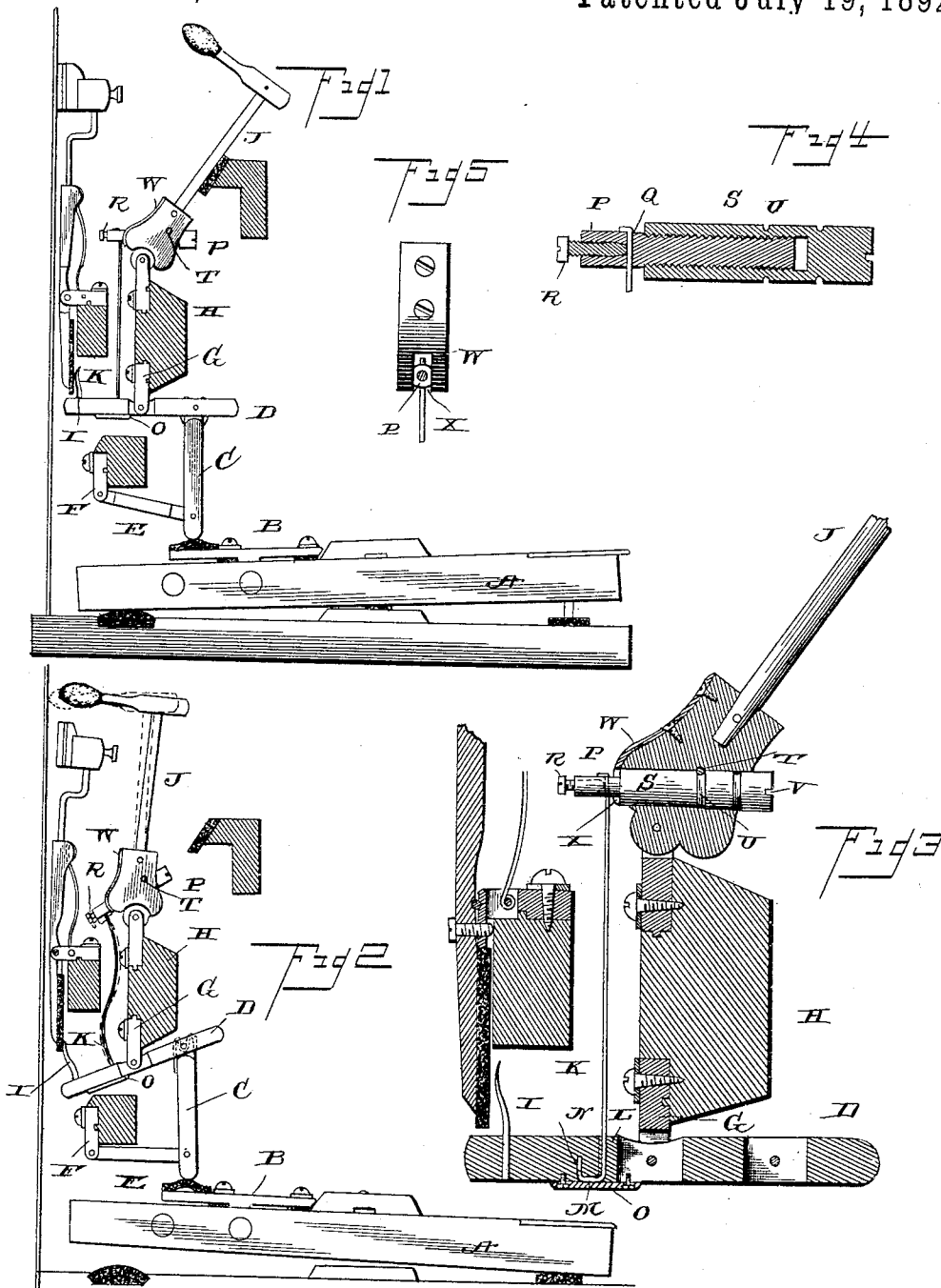


(No Model.)

E. C. BAUGHAN.
PIANO ACTION.

No. 479,047.

Patented July 19, 1892.



Witnesses

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PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 479,047, dated July 19, 1892.

Application filed April 18, 1891. Serial No. 389,431. (No model.)

To all whom it may concern:

Be it known that I, EUGENE C. BAUGHAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Piano-Actions; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention has for its object the provision of a piano-action in which the ordinary jack will be dispensed with and a very simple and accurate action produced. This object I accomplish by the use of the mechanism illustrated in the accompanying drawings; and the invention consists, primarily, in a perpendicular spring-rod acting on the hammer.

It further consists in means for adjusting the said rod, all of which will be hereinafter fully described, and then pointed out in the claims.

In the drawings, Figure 1 is a view, partly in section and partly in side elevation, showing my action in its normal position. Fig. 2 is a similar view showing the position of the parts when the key is struck. Fig. 3 is a sectional view of the hammer-butt and the damper-lever, showing the spring-rod in elevation. Fig. 4 is a longitudinal sectional view showing the mechanism for regulating the tension or adjusting the spring-rod. Fig. 5 is a detail rear elevation of the hammer-butt.

The key A is of the usual or any preferred construction and is mounted on the piano-frame in the ordinary manner. On the upper side of the key, in rear of the pivot thereof, I mount a saddle B, as clearly shown in Figs. 1 and 2. Directly over this saddle and having its lower end resting thereon is a vertically-movable rod C, which has its upper end pivotally mounted in a socket in the double-acting lever D, near the front end of the same. The lower end of this rod C is maintained in its proper position over the saddle by means of a vibratory guide-arm E,

having its front end pivoted to the said rod and its rear end pivoted to a cap F, secured to one of the transverse beams or rails of the piano-frame. The double-acting lever D is pivoted at about its center to a cap or bracket G, secured to the rail or beam H of the piano-frame, and it is provided at or near its rear end with a trigger, offset, or arm I, that bears against the lower end of the damper-lever, and thereby operates the same, as will be presently more fully referred to.

The hammer J is of the usual form, is pivoted on the upper side of the rail H, and is connected with the double-acting lever by the perpendicular spring-rod K. The lower end of the spring-lever is inserted through a slot L in the double-acting lever and is then bent rearward under said lever, as at M, after which it is bent upward and inserted into the said lever, as shown at N. A clamping-plate O is then secured to the under side of the double-acting lever so that the spring-rod will be doubly secured, the bent end inserted into the double-acting lever forming a fastening, and the clamping-plate preventing the release of that fastening. The upper end of the spring-rod is secured to a shaft, rod, or plug P by being inserted through an opening Q therein and then fastened in the said plug by a screw R, which is mounted in the end of the plug and bears on the end of the rod, as shown most clearly in Fig. 4. This plug, rod, or shaft P is externally threaded and is mounted in an internally-threaded regulating screw or case S, which is arranged in the hammer-butt. The regulating screw or case S is free to rotate in the hammer-butt, but is prevented from moving longitudinally therein by a pin T, which is inserted transversely through the hammer-butt and engages an annular groove U in the regulating screw or case. The front end of the barrel is provided with a groove V or otherwise suitably constructed, so that it may be readily engaged by a suitable tool and rotated. The plug is prevented from rotating when the regulating screw or case is rotated by means of the plate or keeper W, secured to the rear side of the hammer-butt and provided at its lower end with a notch X, engaging the flat sides of the plug.

In practice, when the key is depressed the

rod C will be elevated and the front end of the double-acting lever consequently raised. This action will cause the trigger I to press against the lower end of the damper-lever and force the same rearward, thereby lifting the damper from the wires. Simultaneously with this action the lower end of the spring-rod will be carried downward and will draw the hammer forward against the wires, assuming the position shown in Fig. 2 in dotted lines. As soon as the hammer has struck the wires the resiliency of the spring causes it to assume the position shown in full lines in Fig. 2, thus drawing the hammer away from the wires and preventing the tone from being muffled. Upon releasing the pressure on the key the resiliency of the spring will cause it to at once assume its normal position, (shown in Fig. 1,) and the pressure exerted on the damper by the double-acting lever will be relieved, thus permitting the damper to be thrown back upon the wires by the usual spring. It will thus be seen that I have produced a very rapidly-acting device, by the use of which I obviate the necessity of using a jack with its accompanying parts or a back-jack with its accompanying parts, and overcome all muffling of the tones.

The tension or resiliency of the spring-rod may be easily and effectively regulated by the use of the screw or case S and plug P. As the screw or case is rotated in one or the other direction the plug will be caused to move in or out, as will be readily understood. When the plug is moved outward, the upper end of the spring-lever will be free to follow the arc described by the lower end, and consequently will not exert so much pressure on the hammer, so that more force will have to be applied to the keys in order to produce the tone. The tone will also be more indistinct. It will thus be seen that by moving the plug inward I can readily adjust the action so that the hammer will set back very close to the wires,

and consequently all the tones will be clear and sharp, even in the most rapid playing.

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

1. In a piano-action, the combination of the double-acting lever, the hammer, and a perpendicular spring-rod connecting the double-acting lever and the hammer.

2. The combination of the double-acting lever, the hammer, the regulating screw or case mounted in the hammer-butt, and the perpendicular spring-rod having its lower end secured to the double-acting lever and its upper end connected to the regulating screw or case.

3. The combination of the damper-lever, the double-acting lever having its rear end acting on the damper-lever, the hammer, and the perpendicular spring-rod having its lower end secured to the double-acting lever and its upper end connected to the hammer.

4. The combination of the hammer, the spring-rod acting thereon, the plug having the end of the spring-rod secured thereto, and the rotatable barrel engaging the plug.

5. The combination of the hammer-butt, the barrel mounted therein, the pin engaging the barrel, and the spring-rod having its upper end secured to the plug.

6. The combination of the hammer-butt, the double-acting lever, the plug carried by the hammer-butt, the spring-rod having its upper end secured to the said plug and its lower end bent under and inserted into the double-acting lever, and the clamping-plate secured to the double-acting lever over the said bent end of the spring-lever.

In testimony whereof I affix my signature in presence of two witnesses.

EUGENE C. BAUGHAN.

Witnesses:

R. W. BISHOP,
M. M. GOWANS.