

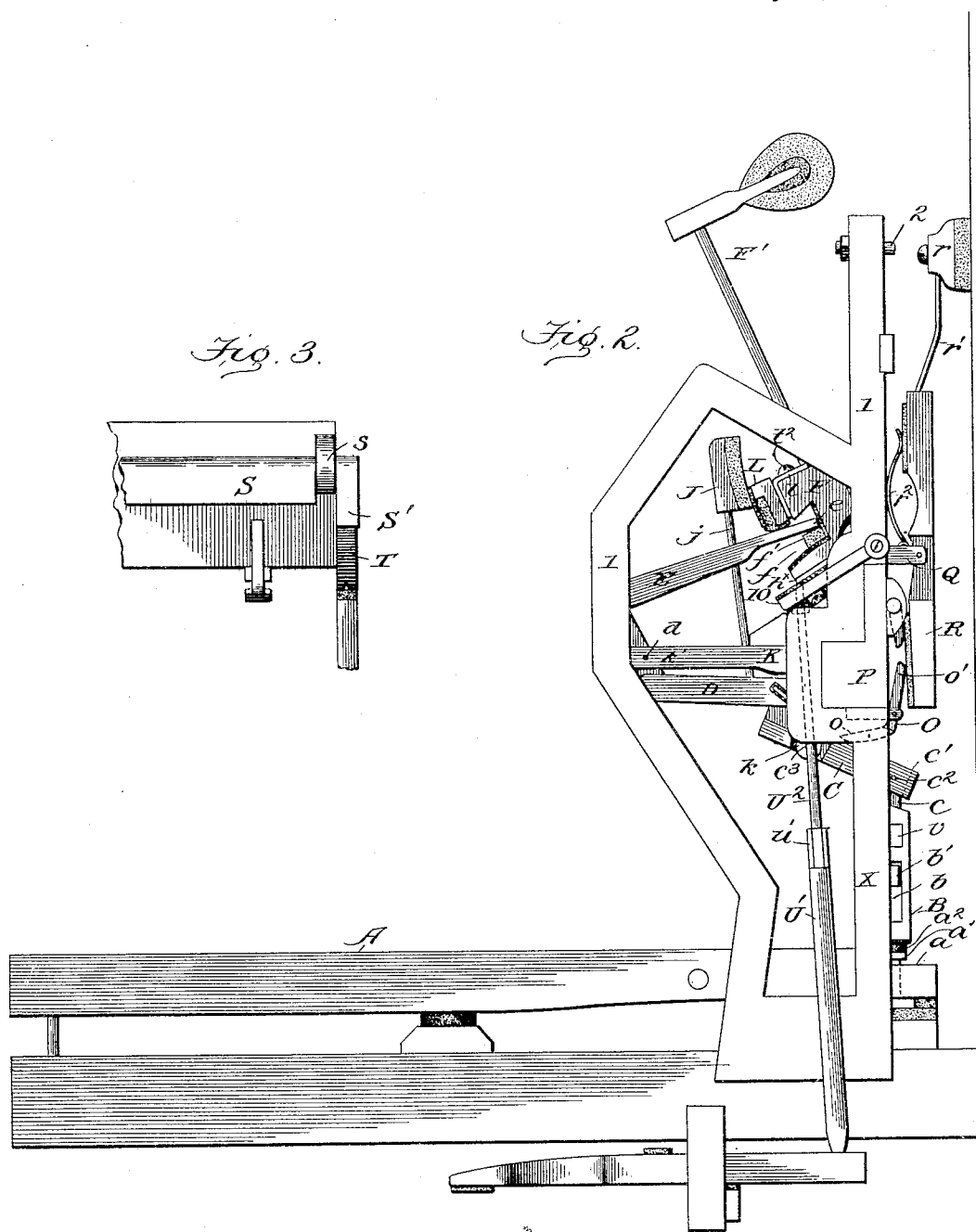
(No Model.)

2 Sheets—Sheet 2.

R. E. COBB.
PIANO ACTION.

No. 582,155.

Patented May 4, 1897.



WITNESSES:

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PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 582,155, dated May 4, 1897.

Application filed May 19, 1896. Serial No. 592,190. (No model.)

To all whom it may concern:

Be it known that I, RURIC E. COBB, a citizen of the United States, residing at Hephizibah, in the county of Richmond and State of Georgia, have invented certain new and useful Improvements in Piano-Actions, of which the following is a specification.

My invention relates to improvements in piano-actions, and has for its object to provide an action for use on upright or grand pianos simple in construction and economical and durable in manufacture.

A further object is to provide an action for pianos capable of great rapidity of action, certain and direct motion, and easy and accurate adjustment.

With other objects in view, which will hereinafter be apparent, my invention consists in the peculiar construction of the hammer and its operating mechanism and the novel combination of certain parts, all of which will hereinafter be fully described in the specification and particularly noted in the claims, attention being directed to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved action. Fig. 2 is a side view of same. Fig. 3 illustrates the hard-pedal mechanism, and Fig. 4 is a detail view of the actuating mechanism.

In the construction of my invention I employ the usual metal framing 1 found in upright pianos, which is braced by means of suitable rods 2 to the rear framing. To the latter is secured the wrest-plank and the string-plate, the wires being secured to the wrest-plank and tuning-pins in the usual manner.

The key A has a cut-out portion a , to which is secured an adjustable seat a' , such seat carrying a felt washer a^2 and forming a rest for the weighted vertical block B. This vertical block B has formed in it a slot b , through which passes a horizontal bar b' , secured to the hammer-rail-supporting legs X X, the purpose of such bar b' being to maintain the block B in a vertical position.

The upper end of the block B has a reduced portion c , working in a slot c' , formed in the inner end of the actuating-lever C, and being held therein by a pivotal pin c^2 . This

actuating-lever C is fulcrumed at c^3 to a downwardly-extended arm k of the jack-bed rail K, the outer end thereof having an upwardly-projecting portion c^4 , working in a slot formed on the lower inner end of the jack-bed lever D and being guided in its movement by means of pins x , sliding in the slots y , formed in the bifurcated ends of said jack-bed lever D. This jack-bed lever D is obtuse-angled and fulcrumed at d to the outer bifurcated end of a horizontal projection k' of the jack-bed rail K, and to the upper end of the jack-bed lever is pivoted the actuating-jack E, the inner end e of which extends into a slot formed in the hammer-butt. Said jack E is in function a push-bar, whereby the jack-lever D acts on the hammer-butt F.

The hammer-butt F, carrying the striking-hammer F', is fulcrumed at z to the upper arm of the jack-bed rail K, said butt having a cut-out portion f or recess, carrying a cushion-block f' on its rear face, and into which the inner end of the actuating-jack E works when the key is operated. An adjustable hammer-check L is secured to the outer face of the hammer-butt by means of an angular plate l , provided with a slot l' in its upper face and secured to the butt by means of a screw l^2 , such construction permitting an easy adjustment of the said hammer-check.

The hammer-check J is secured to the rod j and passes downward through a vertical slot e' , formed in the actuating-jack E, said rod also passing through a similar slot W, formed in the jack-bed rail K and having its end secured in the lower end of the jack-bed lever D.

A suitable spring H, secured to the horizontal cross-bar n , serves to return and hold the hammer in its normal position, this result being effected by means of weights v , secured to the actuating-lever, jack-bed lever, and actuating-jack, such construction serving to return the hammer to its downward position after being struck, and being capable of operating independent of the action of the spring N.

To the under side of the hammer-rail P is pivoted the damper-actuating dog O, the lower end o of which is extended downward into contact with the actuating-lever C, the upper

vertical portion o' being suitably cushioned and normally in contact with the lower end of the damper-lever R. This lever R is fulcrumed to a support Q, secured to the upper face of the damper-rail and carrying on its upper end the usual damper r and its supporting-rod r' . A spring r^2 is secured to the support Q and serves to hold the damper into contact with the strings.

I will now proceed to describe the pedal-operating mechanism, the construction of which is designed to provide a simple and positive pedal action, and by referring particularly to Fig. 1 of the drawings it will be noticed that the pedal-block S is hinged upon curved lugs s and provided with a downwardly-extending finger S' . To the side of the hammer-rail P is secured a cam T, fulcrumed at t and provided on its longer arm with a slot, into which is fitted the upper cushioned end of a vertical operating-rod U, the lower end of said rod being fitted into the inner slotted end of the hard pedal, the inner end of said cam being curved and adapted to engage the extended finger S' , whereby a pressure on the pedal will force the rod U upward and, through the medium of cam T, cause the plate S to be rocked inward, engaging the lower end of the damper-levers and moving the dampers out of contact with the strings, as will be readily understood.

By referring now to Fig. 2 of the drawings the operation of the soft pedal can best be understood. To the inner end of this pedal I secure an operating-rod U' , (similar to the rod U, but somewhat shorter,) the upper end of such rod being provided with a horizontal arm u' , to the upper face of which is firmly secured a rod U^2 , such rod having a pivotal connection at its upper end with an operating-plate, as will now be described. A plate 10 is hinged to the metal framing and lies normally flat on the cushion 13, secured within the cut-out portion of the jack-bed rail K. The upper side of said plate 10 is cushioned and forms a rest for the underlead face h^x , the purpose of which will presently appear. When the soft pedal is depressed, the plate 10, through the movement of the operating-rods U' and U^2 , is rocked on its support, and, being in contact with the hammer-butt, causes it to be raised out of contact with the cushion J and thereby brings the hammer into close relation with the strings, so that when a key is struck the sonorous vibrations of the strings will be lessened—*i. e.*, a soft sound will be produced by reason of the throw of hammer being decreased, as will be readily understood.

The operation of my improved action is as follows: When a note on the piano is struck, the vertical block B is caused to rise, thereby rocking the actuating-lever C and depressing the inner end of jack-lever D, the upper end of which, carrying the actuating-jack E, is

forced inward, and the hammer, by virtue of its engagement with said actuating-jack, is driven forward against the strings. When the hammer arrives within one millimeter of the strings, the upper point of the cushion-block f' engages the actuating-jack E in upward motion and permits of the automatic escapement of the said jack. The hammer in its recoil is caught and held by the cushion-check J, which closely follows the hammer-check during the travel forward, said check J also serving to hold the hammer a short distance away from the strings when the key is held depressed to permit of continued vibrations of the strings, such result being, when desired, accomplished without the intervention of the hard pedal for retaining the damper out of contact with the strings.

From the foregoing description, in connection with the drawings, the economy of manufacture and efficiency of my improved action will readily appear. Great rapidity of action and certain and direct motion are obtained through the construction and operation of the hammer-butt and the actuating mechanism employed to set the hammer in motion. It will also be seen that by the substitution of a few mechanical equivalents this action may be adapted for use in a grand piano as well as in the upright.

Having thus described my invention, the following is what I claim:

1. In a piano-action, the combination, with a key, a hammer, and the hammer-butt having a recess as specified, of the angular jack-bed lever pivoted to the bed-rail, a push-bar, or jack, pivoted to its upper arm and extending into said recess, a lever for actuating the said jack-bed lever, and a bar for operatively connecting such actuating-lever with the key, as shown and described.

2. In a piano-action, the combination, with a key, and the hammer having a butt provided with the adjustable cushion L, and a recess also having a cushion f' , of the obtuse-angle jack-bed lever D, pivoted to the laterally-projecting portion of the bed-rail, the jack or push-bar E, pivoted to the upper arm of said lever, and its free end projecting into said recess, and adapted to work in contact with aforesaid cushions when the hammer rebounds, and the pivoted actuating-lever C, having a sliding engagement with the jack-bed lever, and the post B, connecting the said lever C and the key, as shown and described.

3. In a piano-action, the combination of a pedal-lever, and its vertical rod, the plate 10 pivoted at its inner end, and having also a pivotal connection with the said rod at its free end, the hammer having a pivoted butt provided with a recess and a lateral extension that rests on such pivoted plate, the jack-bed lever D, the jack or push-bar E, pivoted to the said jack-bed lever, and its free end work-

ing in the butt-recess, whereby it is adapted to actuate the hammer, whether raised by the plate 10 or not, as shown and described.

5 4. In a piano-action, the combination, with the key-lever, pivoted hammer and its butt, the jack E, and the pivoted obtuse-angle lever D, having an oblique slot in its free end, of the horizontal actuating-lever C, having a

pin that slides in said slot, and means connecting the note-lever and such actuating-lever, all operating as specified.

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Witnesses:

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