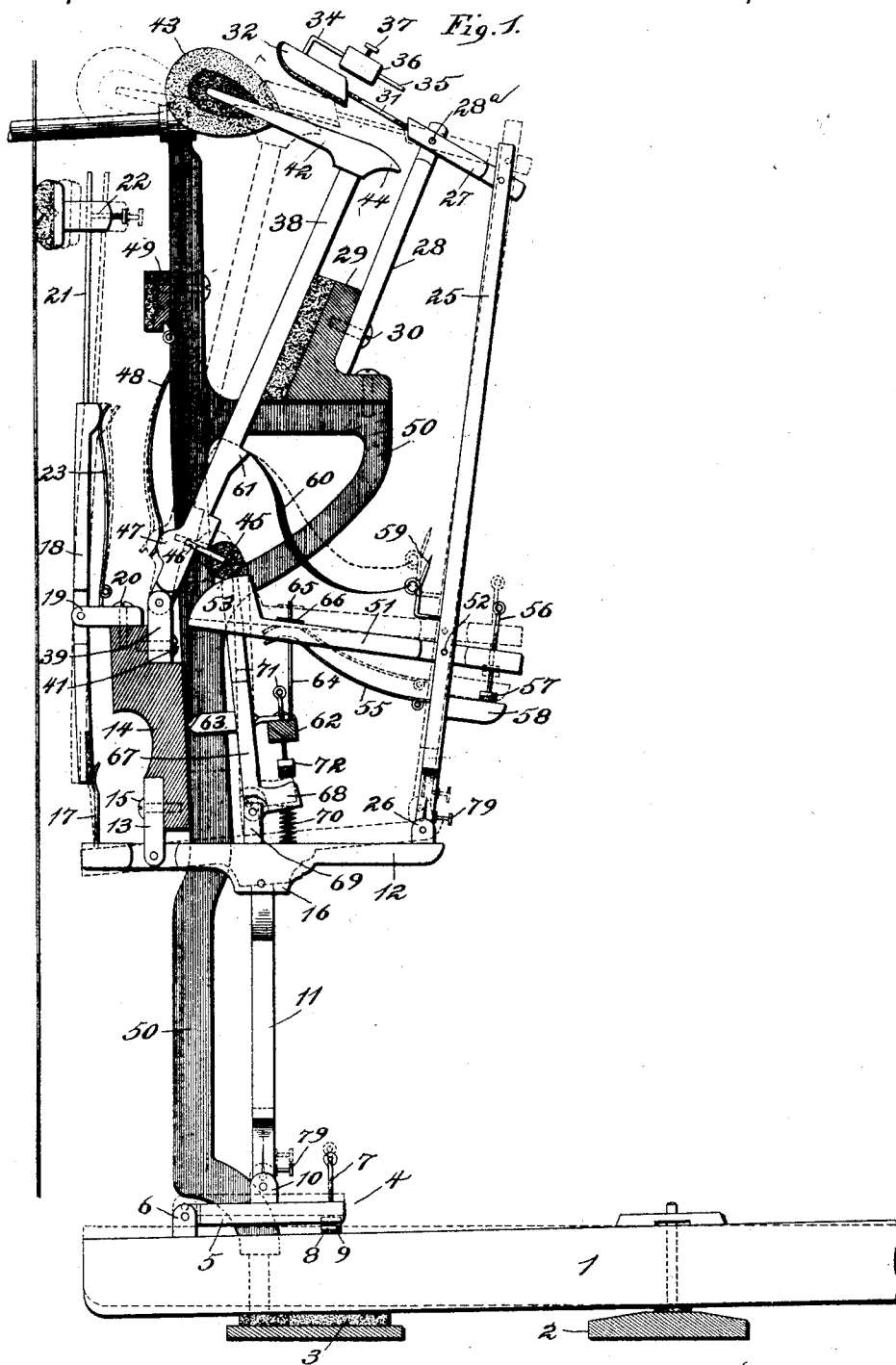


L. SCHUBERT.
PIANO ACTION.

No. 516,451.

Patented Mar. 13, 1894.



Witnesses:

Wm. James Santley.
M. Greffier

Inventor.

Louis Schubert.

By Higdon Higdon Langan
Attorneys,

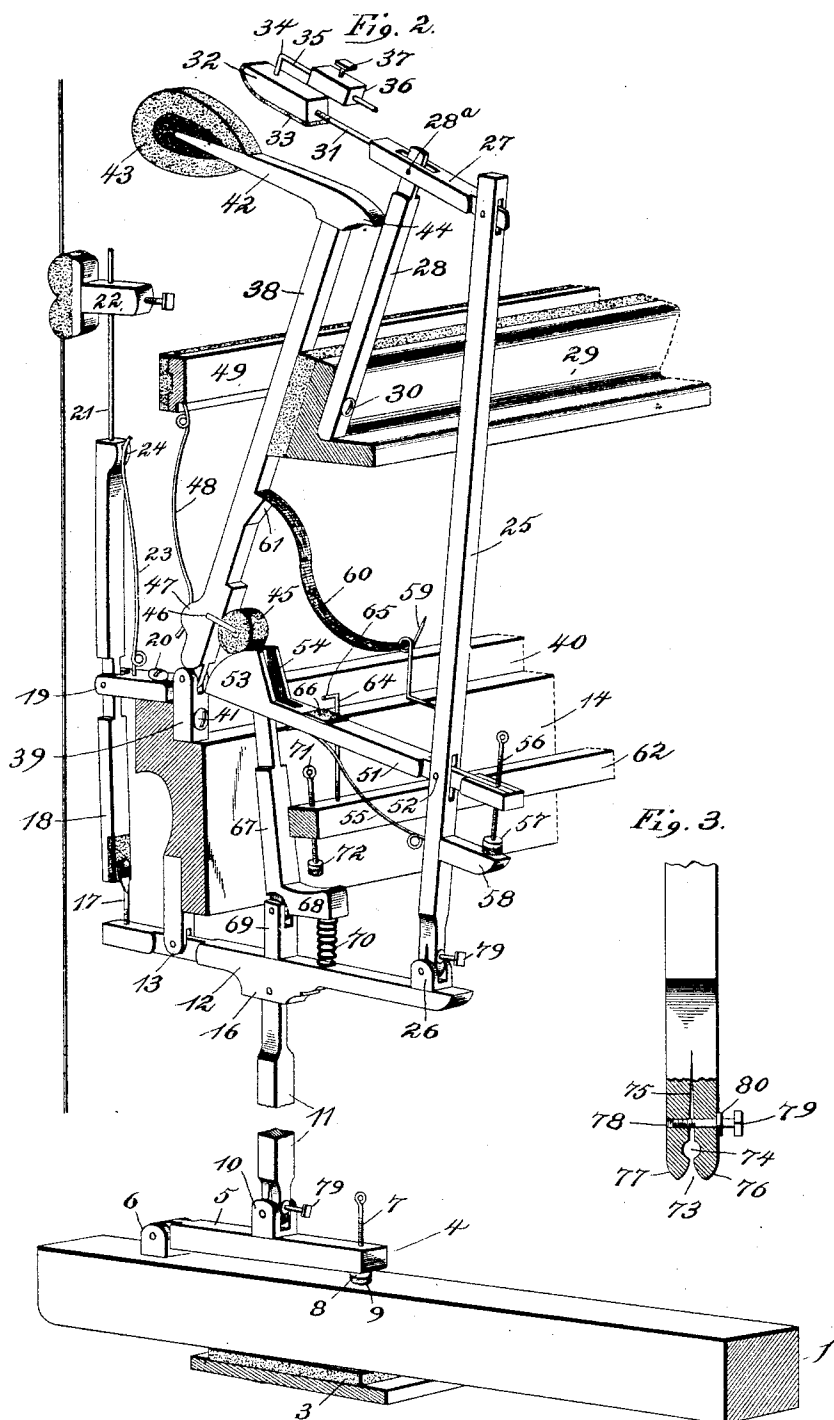
(No Model.)

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UNITED STATES PATENT OFFICE.

LOUIS SCHUBERT, OF ST. LOUIS, MISSOURI.

PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 516,451, dated March 13, 1894.

Application filed September 4, 1893. Serial No. 484,712. (No model.)

To all whom it may concern:

Be it known that I, LOUIS SCHUBERT, of St. Louis, State of Missouri, have invented certain new and useful Improvements in Piano-Actions, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved piano action, and consists in the novel construction, combination and arrangement of parts as will be more fully hereinafter described and designated in the claims.

In the drawings: Figure 1 is a side elevation of a piano action, showing my improvement therein and Fig. 2 is a perspective view of the same. Fig. 3 is an enlarged detail sectional view of an adjustable bearing, which I use in carrying out my invention.

1 indicates an ordinary piano key which is fulcrumed on a bar 2 in the ordinary way, and the rear end is provided with a pad 3 of ordinary construction, which limits its downward motion.

4 indicates an adjustable device which is located on the upper side of the key and adjacent its inward end immediately under the action. This device is constructed with a horizontal bar 5, one end of which is pivoted in bearings 6, and threaded through the opposite end is a regulating screw 7, the lower end of which is provided with a button 8, to which a pad 9 is connected in the usual way.

Located on the upper side of the bar 5 about half way intermediate its ends is a bearing 10, in which the lower end of a vertical bar 11 is pivoted.

12 indicates a horizontal supporting-bar, which is pivotally mounted in a bearing 13, which is connected to the lower edge of a main-rail 14 by a screw 15. The bar 12 is provided with a projection 16 formed on the lower side thereof about midway intermediate its ends in which the upper end of a vertical bar 11 is pivoted.

Connected to the rear end of the bar 12, and extending upward therefrom a suitable distance, is a spoon 17, which engages the lower end of a damper-lever 18. This lever is pivotally connected to a bearing 19 about midway intermediate its ends. The bearing 19

is connected to the upper edge of the main-rail 14 by a screw 20.

In the upper end of the damper-lever 18 is a wire 21, which carries a damper 22.

23 indicates a damper-spring, one end of which is connected to the upper side of the bearing 20, and its free end engages a notch 24 formed in the upper end of the damper-lever 18.

25 indicates an oblique-bar, the lower end of which is pivotally connected to the upper side of the supporting-bar 12 in bearings 26. The upper end of this bar is held in position by a tilting-bar 27, one end of which is pivoted in the upper end of said bar 25, said tilting bar being held in position by a stationary oblique-bar 28, in the upper end of which is pivoted the bar 27 at 28^a and the lower end of which is rigidly connected to a hammer-rail 29 by means of a screw 30.

Connected to the free end of the tilting bar 27 is a rod 31, which projects outward from said bar in alignment therewith, and its opposite end is provided with a stop 32. The lower side of this stop is covered with a pad 33. The purpose of this stop will be hereinafter mentioned.

Connected to the upper side of the stop 32, and extending upwardly therefrom a suitable distance, is a rod 34, the upper portion 35 of which is bent so as to be parallel with the upper side of said stop. Adjustably mounted on this portion 35 is a weight 36, which is constructed with a set-screw 37 so that said weight can be readily adjusted on said rod.

38 indicates a hammer-shank which is pivoted at its lower end in a bearing 39 which is located in a groove 40, formed in one corner of the main-rail 14, and is held in position by a screw 41. Connected to the upper end of the shank 38 is an arm 42, which extends outwardly at right angles from said shank and carries a hammer 43. The opposite end 44 of said arm from the hammer projects outward from the shank a suitable distance, and the upper side is chamfered for the purpose hereinafter mentioned.

45 indicates a felt punching, which is round in side elevation and of the same thickness as the shank 38. This punching is connected to the lower end of the shank in the position

as shown in Figs. 1 and 2 by a small strip 46 of wood or like material.

Formed on or fixed to the opposite side of the shank from the punching 45 is a projection 47, which is constructed to allow the free end of a shank-spring 48 to engage it. The opposite end of said spring is connected to a spring-rail 49 in the usual manner. These rails 49, 29 and 14 are connected and supported by a bracket 50 which is of ordinary construction. (See Fig. 1 for illustration.)

51 indicates a repetition-lever, one end of which is pivoted at 52 in the oblique-bar 25, and the opposite end is provided with an upward projection 53. The outer portion of this projection is rounded and engages the punching 45. This projection 53 is provided with a vertical slot 54 which extends entirely through said projection and into the lever 51 a short distance. The projection 53 is held in engagement with the punching 45 by a spring 55, the free end of which engages the lower side of the repetition-lever 51 adjacent its free end, and the opposite end of the spring is connected to the oblique-bar 25 a suitable distance below the repetition-lever. The pivotal end of the repetition-lever 51 extends a suitable distance from the oblique-bar 25, and is provided with a regulating-screw 56, the lower end of which is provided with a button 57 which is padded on its lower side. This button engages a projection 58, which is connected to the adjacent side of the oblique-bar 25 a suitable distance below the end of said repetition-lever. (See Figs. 1 and 2 for illustration and location.)

Connected to the side of the oblique bar 25 adjacent the repetition-lever a suitable distance above said lever, is a bridle-hook 59, to which one end of a bridle 60 is connected, the opposite end being connected to a projection 61 formed on the adjacent side of the shank 38.

62 indicates a regulating-rail, which is held in position by a bracket 63, which is connected to the rail 14.

Screwed into the upper side of the rail 62, and extending upward therefrom a suitable distance, is a repetition-hook 64. This hook extends upward adjacent one side of the repetition-lever 51 and the upper end is bent so as to form a projection 65, which projects over the top of said lever. Said projection is constructed to engage a pad 66, located on the top of the repetition-lever and limit its upward motion.

67 indicates a jack, which is provided with a right angle projection 68 formed on its lower end. The lower end of this jack is pivotally mounted in bearings 69 which are located on the upper side of the supporting-bar 12 about midway intermediate its ends.

70 indicates a spiral jack-spring which engages the lower side of the projection 68 and the upper side of the supporting-bar 12. This spring is to hold the jack in its normal position; that is, the upper end in engagement

with the lower side of the punching 45. The upper end of the jack 67 is constructed with a chamfer on each side thereof, which allows said end to pass into the slot 54 in the projection 53.

71 indicates a regulating-screw which is threaded through the regulating-rail, and extends downwardly a suitable distance below said rail, and the lower end is provided with a button 72 which is padded on its lower side.

I have constructed a detachable adjustable bearing 73, which is connected to the lower end of the oblique-bar 25 which engages the bearing 26 of said bar, also on the lower end of the vertical bar 11, which engages the bearing 10. This bearing is constructed by forming a hole 74 in the lower end of a bar or the like, and forming a slot 75 through said opening and in alignment with the sides of said bar. By this slot it forms parallel projections 76 and 77. By forming a hole 78 through the projections immediately above the hole 74, and at right angles therewith, a screw such as 79, can be inserted therein. The screw 79 is loose in the projection 76 and threaded into the projection 77, said screw being provided with a collar 80, which engages the outer edge of the projection 76 so that when the screw is turned in the required direction, the projections 76 and 77 can be drawn together, or vice versa, thus making a very convenient bearing.

The operation is as follows: When the key 1 is struck by the operator, it being fulcrumed on the usual bearing 2, the opposite or inner end will be raised, thus moving the action in the position shown by dotted lines in Fig. 1. When the key is so moved, it will raise the outer end of the supporting-bar 12 up from its pivotal bearing 13. The jack 67 being carried by said bar, and the upper end engaging the punching 45, which is connected to the shank 38, it will throw said shank and its connections forward with such force that when the hammer 43 strikes the string it will rebound. The oblique-bar 25 also being carried by the supporting bar 12, it will also rise, and by it rising it will throw the stop 32 downward a suitable distance to catch the end 44 of the arm 42 as it rebounds and prevent it from rebounding forward and striking the string again. When the oblique-bar 25 is raised, it will raise the repetition-lever 51, the inner slotted end of which is to form a guide-way for the upper end of the jack 67. The upward movement of the inner end of the repetition-lever 51 can be regulated by the adjustable screw 56, the lower end of which is constructed with a pad, as hereinbefore described, and so constructed that it will engage the outer end of the projection 58 when the action is in its normal position, as shown by solid lines in Figs. 1 and 2.

The adjustable device 4 being constructed as shown and described, when it is desired to adjust the movement of the action, the operator turns the screw 7 in the required direc-

tion, which will raise or lower the free end of the bar 5, whichever is desired. By this device the action can be readily adjusted.

To balance the key, I have constructed a weight 36, which is located as shown and described. This weight being connected to the top of the stop 32, and said stop being connected to the bar 27 at the opposite end from the oblique-bar 25, and the bar being fulcrumed at 28^a, it will balance the action and take the weight of said action from the key. This weight is also adjustable on the portion 35 of the rod 34, which carries it by the set-screw 37 being located therein, which allows said weight to be moved on said bar and rigidly connected thereto at the desired point.

What I claim is—

1. In a piano action, the combination of an adjustable device with a key, said adjustable device consisting of a bar 5 pivoted at one end, a vertical bar 11 pivoted to the upper side of said bar 5, and an adjustable screw threaded through the free end of the bar 5, substantially as set forth.

2. In a piano action, a supporting bar 12 pivoted in bearings 13, an oblique-bar 25 pivotally connected to the top of the supporting-bar 12, a bar 27 one end of which is pivoted in the upper end of said oblique-bar, the bar 27 being fulcrumed at 28^a, and the opposite end is constructed with a stop 32, all arranged and combined to operate in the manner set forth.

3. In a piano action, a supporting bar, an oblique bar pivoted to said supporting-bar, a repetition-lever in combination with an oblique-bar, said repetition-lever constructed with a projection on the free end, a vertical slot formed through said projection, and means for regulating the movement of the free end of said lever, substantially as set forth.

4. A piano action constructed with a regu-

lating device 4 located on the inner end of the key, said adjustable device consisting of a bar 5, one end of which is pivoted in bearing 6, the opposite free end constructed with a screw threaded therein to vertically adjust the free end of said bar, a vertical bar 11 pivoted in bearings 10 connected to the upper side of the bar 5, the upper end of the bar 11 being pivoted in the supporting bar 12, said supporting bar being pivoted in bearings 13, an oblique bar 25 pivoted to the free end of said supporting bar in bearings 26, a repetition-lever 51 pivoted in said oblique bar, a tilting bar 27, one end of which is pivoted to the upper end of the oblique bar 25 and fulcrumed at 28^a to an oblique stationary bar 28, and a stop 32 connected to the free end of the tilting bar 27 by a wire 31, substantially as set forth.

5. In combination with a piano action, a repetition lever, one end being pivoted in the oblique bar, the opposite end constructed with an upwardly extending projection, a vertical slot formed through said projection, a spring to support the free end of said oblique bar, and means for adjustably regulating the upward movement of said bar, substantially as set forth.

6. In combination with a piano action, a balance consisting of a weight adjustably mounted on a rod connected to a stop, said stop being connected to one end of a tilting lever, which is fulcrumed and its opposite end pivoted to an oblique bar, which is indirectly connected to the rear end of a key, substantially as set forth.

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

LOUIS SCHUBERT.

Witnesses:

W. J. SANKEY,
JNO. C. HIGDON.