No. 896,763. PATENTED AUG. 25, 1908.

F. SCHIMMEL.

PIANO ACTION.

APPLICATION FILED OCT. 15, 1907.

2 SHEETS—SHEET 1.

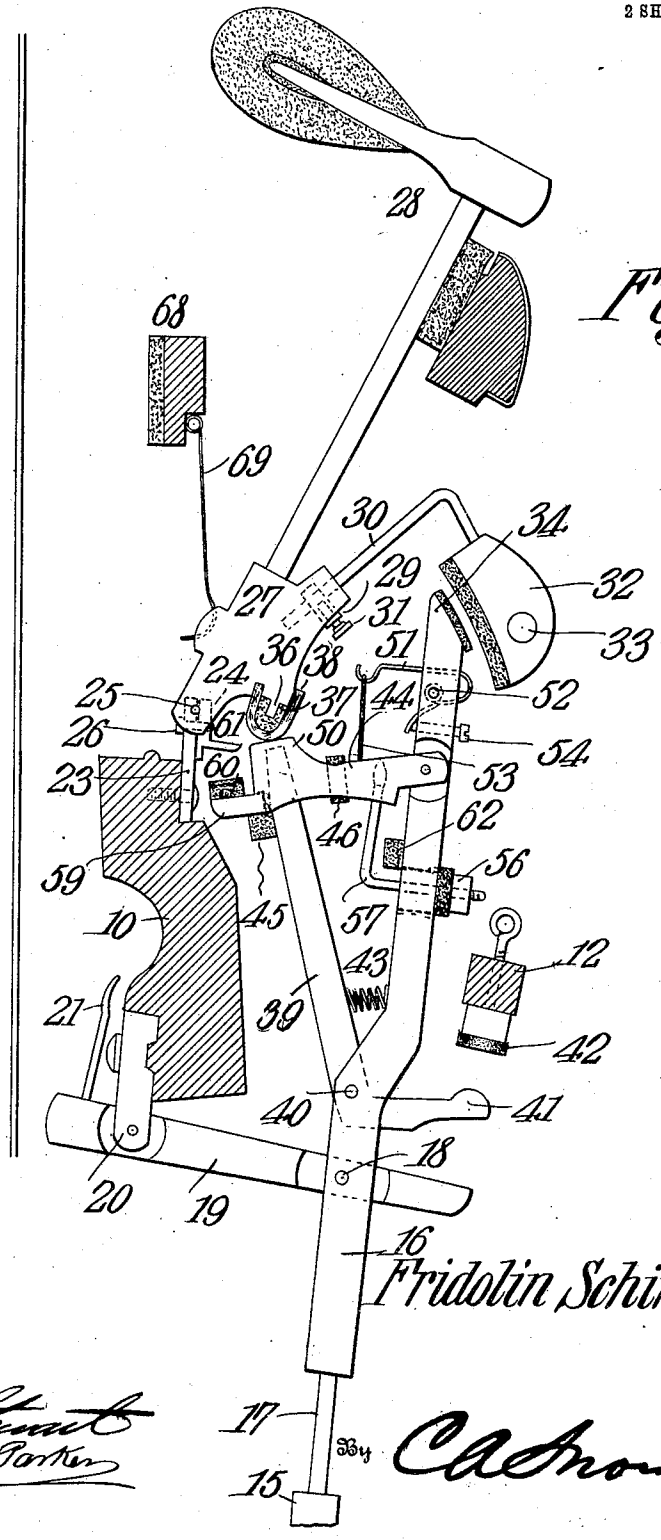


Fig. 1.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 2

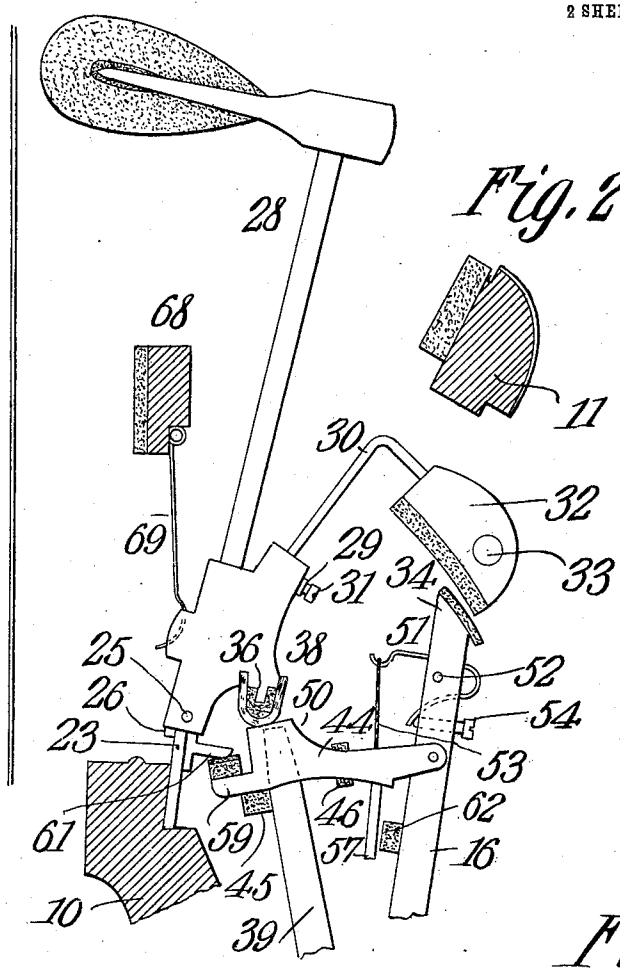


Fig. 4.

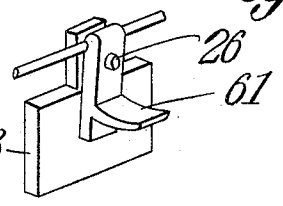


Fig 3.

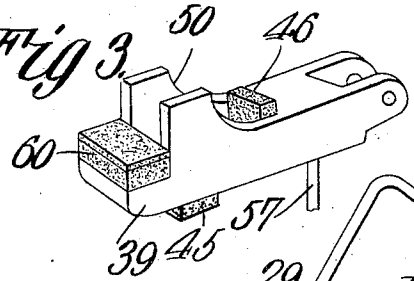
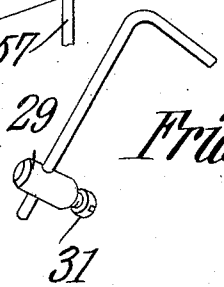


Fig. 5



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UNITED STATES PATENT OFFICE.

FRIDOLIN SCHIMMEL, OF FARIBAULT, MINNESOTA.

PIANO-ACTION.

No. 896,763. Specification of Letters Patent. Patented Aug. 25, 1908.

Application filed October 15, 1907. Serial No. 397,556.

To all whom it may concern:

Be it known that I, FRIDOLIN SCHIMMEL, a citizen of the United States, residing at Faribault, in the county of Rice and State of Minnesota, have invented a new and useful Piano-Action, of which the following is a specification.

This invention relates to piano actions, and has for its principal object to provide an action by which a much harder blow than usual may be made, and which will permit of rapid repetition of any note without the necessity of fully releasing the key.

A still further object of the invention is to provide an action in which the hammer butt is engaged by the jack and by a repetition lever so mounted and constructed as to retard the movement of the hammer toward the hammer rest rail until the jack has moved to a position to repeat the stroke.

A still further object of the invention is to provide a hammer butt cushion of novel construction that will permit the ready throw off and return of the jack.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is an elevation of a piano action constructed in accordance with the invention, the parts being in normal position. Fig. 2 is a similar view showing the manner in which the repetition lever supports or holds the hammer after a stroke, and while the jack returns to position under the hammer butt. Fig. 3 is a perspective view of the repetition lever detached. Fig. 4 is a similar view of the hammer flange and cap. Fig. 5 is a detail perspective view of one of the back check wires and its carrying socket.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In carrying out the invention, the main rail 10, the hammer rest rail 11, and the regulating rail 12, are all of the usual construction and arranged in substantially the same general relation as in an ordinary action. The key and the lower portion of the abstract are connected in the usual manner, these parts being omitted from the drawing for the sake of clearness.

The extension or abstract is formed of two sections 15 and 16 and, as usual, is made of wood. As the extension is of much greater length than is usual in the ordinary action, it is found advisable to make the same in sections, as shown, and to connect these sections to each other by a small metal rod 17, which prevents warping at this point as would likely be the case if of wood and accordingly prevents any binding action at the pivotal connection between the parts 16 and 19. This construction, further, minimizes the danger of warping, such as would be likely to occur if the extension were formed of a single strip of wood. The lower end of the extension is guided in the usual manner and rests as usual on the rear end of the key lever, or on a rocker secured to said lever. The upper end of the extension is pivotally connected by a pin 18 to a guide 19, this guide being pivoted to a flange 20 that is carried by the main rail and being provided with a damper actuating finger 21, the damper being omitted from the drawings.

Secured to the upper portion of the main rail 10 is a flange 23 to which is fastened a flange cap 24 the flange being slightly notched for the reception of a center wire or pin 25 that is held in place by the cap 24 and a binding screw 26 is employed to connect the cap to the flange and hold the center pin firmly in place.

Pivoted on the center pin is the lower end of a hammer butt 27 carrying a hammer shank and hammer 28 of the ordinary construction. The upper forward end of the hammer butt is recessed for the reception of a metal socket 29 having an opening to receive the lower end of a back check wire 30, said wire being clamped in place by a screw 31. The outer end of the wire is bent downward forming an arm to which is secured a counter-check 32 carrying a suitable weight 33, said weight serving to assist the return movement of the hammer toward the hammer rest rail 11.

The upper end of the section 16 of the extension carries a back check 34 that is padded

in the usual manner, and the meeting faces of the counter-check and back check are curved so that they may have contact or engagement at the proper point after the hammer rebounds.

The lower portion of the hammer butt is provided with a tongue 36 around which is placed a cushion 37. Over this is placed a U-shaped covering cushion 38 that is arranged to be engaged by the upper end of the jack 39.

The jack 39 is formed of wood and is pivoted at 40 to the upper section of the extension. The jack is provided with a rearwardly extending arm 41 that is arranged to engage a regulating button 42 that is carried by the regulating rail 12. The pivoted portion of the jack passes through a slot formed in the extension, and in the angle between the jack and extension is placed a jack spring 43, that tends to force the jack in the direction of the main rail, so that it may properly be positioned for engaging the hammer butt. The regulating button acts in the usual manner to throw off the jack and disengage its upper end from the cushion 38 for the completion of the stroke.

Pivoted to the upper portion of the section 16 of the extension is a repetition lever 44 that is provided near its free end with a transversely extending slot for the passage of the upper end of the jack. Near the rear end of this slot is arranged a cushion 45 that forms a stop for the jack in its normal position. At the opposite or forward end of the slot is a stop 46 that limits the throw off movement of the jack. The repetition lever is provided with upwardly extending shoulders 50 that are held in constant engagement with the hammer butt cushion 38 by a repetition lever spring 51. This spring is formed of wire and passes through a slot in the upper end of the section 16 of the extension. An intermediate portion of this spring is coiled around a stationary pin 52, and one arm of said spring is connected by a cord 53, while the opposite arm of the spring is engaged by a screw 54 that may be adjusted for the purpose of altering the tension of the spring.

When the parts are in the normal position of rest, the shoulders 50 are in very light engagement with the cushion 38, exercising little or no pressure thereon. This is controlled by a regulating button 56 that is mounted on the threaded end of a stop arm 57 preferably of wire that is secured to the repetition lever near the pivoted end thereof. This wire extends through a vertically elongated slot in the section 16 of the extension, and by turning the regulating button, the lever may be drawn down against the stress of the spring in order to adjust the position of the lever with reference to the cushion 38.

The inner end of the repetition lever is provided with a tongue 59 on which is mounted a cushion 60 that is arranged to engage a stop 61 projecting from the flanged cap 24 for the purpose of stopping the upward movement of the free end of the repetition lever in advance of the completion of the hammer stroke, and when this occurs the spring 51 is placed under additional stress and the button 56 moves away from the forward face of the extension. At the same time the approximately vertical arm of the wire 57 engages with a stop 62 that is carried by the rear face of the extension, so that the repetition lever becomes locked between the stops 61 and 62.

The action is provided with a hammer spring rail 68 and hammer spring 69 of the ordinary construction. In the operation of this action, the upward movement of the extension due to the depression of the key will carry upward all of the parts which are connected to the extension, that is to say the jack, the repetition lever, the back check and the repetition lever elevating spring and regulating means. As the upward movement continues, the jack continues to move the hammer butt until the complete stroke is effected. Just in advance of the completion of the stroke, the cushion 60 of the repetition lever engages the arm 61 and the upward movement of the former ceases. Shortly after this, or practically at the same time, the arm 41 of the jack engages the regulating button 42 and moves the jack clear of the hammer butt and forces it against the jack stop 46. The hammer having completed this stroke, there is a slight rebound, and the counter-check is caught by the back check and held and the members will normally be held locked if the pressure of the key is continued. If, however, it is desired to repeat this movement the pressure on the key is slightly relieved, allowing the extension to descend. During this movement, the hammer butt cushion 38 will engage with the shoulders 50 of the repetition lever and the complete return movement of the hammer will so controlled that the hammer cannot move all the way back to the hammer rest rail, before the jack descends to an extent sufficient to be clear of the button 42, so that the jack may move rearward under the influence of its spring 43 to again engage under the cushion 38, and if the stroke is again repeated, the hammer will be again thrown against the stress of the spring and the note will be sounded as many times as the key is depressed.

I claim:—

1. In a piano action, a hammer, a hammer butt, an extension, a jack carried by the extension and engaging the hammer butt, a repetition lever pivoted to the extension, a spring carried by the extension and tending to force the lever into engagement with the hammer butt, and a stop arm connected to the lever and extending loosely through the

extension and coöperating with said extension for limiting the upward movement of said lever.

2. In a piano action, a hammer, a hammer butt, an extension, a jack carried by the extension and engaging the hammer butt, a repetition lever pivoted to the extension, a spring carried by the extension and tending to elevate said lever, an adjusting screw for the spring, a wire carried by the lever and extending through a slot in the extension, and a regulating button mounted on the wire and engaging the extension.

3. In a piano action, a hammer, a hammer butt, an extension, a jack pivoted thereto and arranged to engage the hammer butt, a repetition lever pivoted to the extension, and slotted for the passage of the jack, a flange to which the hammer is pivoted, and a flange cap having a forwardly extending arm serving as a stop for arresting the upward movement of the lever.

4. In a piano action, a hammer, a hammer butt, an extension, a jack pivoted thereto and arranged to engage the hammer butt and having a rearwardly projecting arm, a knock-out button to engage said arm of the jack, a repetition lever pivoted at one end of the extension and having a tongue at its free end, a cushion upon the tongue, said lever being slotted for the passage of the jack, cushions one at each end of the slot of said lever and serving as stops for the jack, a spring carried by the extension, means for adjusting the tension of the spring, a flexible connection between the spring and lever, a regulating button carried by the lever arranged to engage the extension, a flange to which the hammer butt is pivoted, and a flange cap having an extended arm serving as a stop for engaging the cushioned tongue of the lever.

5. In a piano action, a hammer, a hammer butt, an extension, a jack pivoted thereto and arranged to engage the hammer butt, a repetition lever pivoted at one end to the extension and having a cushioned tongue at its free end, said lever being slotted for the passage of the jack, a spring carried by the extension and connected with the repetition-lever and serving to hold the same up against the hammer butt, a stop located adjacent to the hinged portion of the hammer butt against which the free end of the repetition lever is movable, and an arm projecting from the repetition lever and having a movable connection with the extension, and adjustable means on said arm for adjusting the position of the repetition lever, as herein set forth.

6. In a piano action a hammer, a hammer butt, an extension comprising spaced members and a bendable connection therebetween, a jack pivotally mounted upon the extension and engaging the hammer butt, a spring interposed between the extension and jack, a repetition lever pivoted to the extension and surrounding one end of the jack, a stop upon the repetition lever for the jack, an angular stop arm rigidly secured to the repetition lever and extending loosely through the extension, and a stop device adjustably mounted upon said arm and coöperating with the extension for limiting the movement of the repetition lever.

7. In a piano action an extension having a back check at its upper end, a jack pivoted to the extension, a repetition lever having a slot for the reception of the jack, a hammer, a hammer-butt engaged by the jack, a check wire extending into and adjustably secured to the hammer butt, a countercheck carried by the wire and coöperating with the back check, a spring secured to and out-standing from the extension, a connection between the spring and the repetition lever, means for regulating the tension of the spring, and means carried by the repetition lever and movably engaging the extension for limiting the movement of said lever in one direction.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRIDOLIN SCHIMMEL.

Witnesses:
THOS. H. QUINN,
NELLIE SHEERAN.