

UNITED STATES PATENT OFFICE.

CHARLES L. KALLSTROM, OF CHICAGO, ILLINOIS.

PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 719,120, dated January 27, 1903.

Application filed September 3, 1902. Serial No. 121,946. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. KALLSTROM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Piano-Actions, of which the following is a specification.

This invention relates to actions for upright pianos; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of my invention is to greatly simplify and lessen the cost of the construction of piano-actions by employing a fewer number of pieces or elements than are ordinarily used, yet affording an action which shall have all of the desired qualities or functions.

Another object is to provide a piano-action whereby the hammer is caused after striking the string to be removed therefrom instantly and automatically and to resume its position on the hammer-rest rail as soon as the finger is removed from the key.

A still further object is to remove the damper from the string at the same instant the hammer strikes it.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a view, partly in elevation and partly in section, of a piano-action embodying my invention and illustrating by dotted lines the positions the parts will assume when the key is depressed and the string is struck by the hammer. Fig. 2 is a plan view of the adjusting-screw used for regulating the movement of the extension or bar uniting the key and wippen. Fig. 3 is a perspective view of a portion of the hammer-butt rail, showing the manner of securing the brackets for the hammer-butts thereto; and Fig. 4 is a view in elevation of a portion of one of the keys and

a part of the extension or bar connecting the key and wippen.

Like numerals of reference refer to corresponding parts throughout the different views of the drawings.

The numeral 10 represents a portion of the piano-casing, to which the hammer-rest rail 11, which is provided with a piece of felt 12 on its surface adjacent to the hammer-stems, and the other horizontal rails 13, 14, and 15, are secured in the ordinary manner. The key 16 is pivoted, as usual, at about its middle on the upper surface of the keyboard 17, which board is provided on its upper surface with a yielding cushion composed of a piece of cord or rope 18 and a strip of felt 19, located thereon, and said cushion lies longitudinally on the keyboard near the inner end of the keys. Secured to the upper inner portion of each of the keys is a screw 20, which has a concaved head 21 and is used to adjustably support the extension 22, which has on its lower end a piece of felt 23 to rest on the head 21 of the adjusting-screw, so as to prevent rattling. The head 21 of said screw is provided with a number of openings 24 for the reception of an instrument to be used for turning the same, so that it may be raised or lowered, and as it is concave on its upper surface it is evident that a portion of the felt will be embedded in the cavity, thus producing a close union between the extension and key. The upper end of the extension 22 is pivotally secured to the lower portion of the wippen, which comprises three members, namely: the lower or substantially horizontal piece or portion 25, the middle or substantially vertical portion 26, and the pivoted fly or upper portion 27, which engages the hammer-butt, as will be presently explained. The lower portion 25 of the wippen is pivoted near its inner end to the lower end of a bracket or flange 28, secured to the hammer-butt rail 14, as is clearly shown in the drawings. The upper portion of the member 26 of the wippen is provided with a recess or offset 29 to receive the spring 30; one end of which rests against the upper portion of the member 26 and the other end against the upward extension 31 of the fly or upper member 27 of the wip-

pen, which fly is pivotally secured to the upper inner portion of the member 26, as shown. Just below the recess 29 the member 26 is provided with a screw 32, having on its inner end a felt head 33 to impinge the lower portion of the hammer-butt 34, which portion is provided with felt or buckskin 35 to coact with the felt head of the screw 32, which is used to check the movement of the hammer-butt after the hammer has struck the string, so that the player can control the hammer before it has fallen back on the hammer-rest rail, and thus forms an adjustable back-check for the hammer-butt. As shown, the horizontal rail 13 is located just above the fly 27 and is provided with a screw 36, having a felt-covered head 37, against which the extension 31 of the fly will impinge and which screw and head are used for regulating the movement of the fly. The hammer-butt 34 is pivotally secured to a bracket 38, fastened to the rail 14 by means of a screw 39 and a spring 40, which spring extends the entire length of the rail 14 and acts on all of the brackets or flanges 38, so as to prevent rattling in the event of the flanges or screws becoming loose.

As is clearly shown in Fig. 1, the hammer-butt 34 is of an irregular shape—that is, it has its upper front portion downwardly and forwardly inclined to about its middle, as at 41, and from the lower end of said inclination is provided with a substantially horizontal portion 42, which portion is provided with a cushion or protecting material 43, against which the inner end of the fly 27 will impinge. Between the inner lower portion of the butt and the upper surface of the rail 14 is located a spring 44, which actuates the hammer-butt and causes the hammer-stem to assume its normal position against the hammer-rest rail, as is shown in the drawings by continuous lines. Secured at its lower end to the hammer-butt and extending upwardly is the hammer-stem 45, which is provided at its upper end with a hammer 46 to strike the string 47, which string is normally pressed by the damper 48, which is secured to the damper-lever 49 by means of a rod 50, attached to the upper end of said lever.

Secured to the upper surface of the rail 14 is an arm or bracket 51, to which the lever 49 is fulcrumed. Attached at one of its ends to the arm 51 is a spring 52, the other end of which rests against the upper portion of the damper-lever and normally holds the damper in contact with the spring 47 of the piano. The inner end of the lower member 25 of the wippen is provided with a damper-spoon 53, which rests at its upper end against a piece of felt 54 on the lower portion of the damper-lever. The lower portion of the wippen 22 is pivotally connected by a link 55 to an arm or bracket 56, secured to the rail 15, which extends horizontally below the wippen.

From the foregoing and by reference to the

drawings it will be seen and readily understood that by striking the outer end of the key the inner portion thereof will be raised, thus causing the parts to assume the position illustrated by dotted lines in the drawings, and as soon as the finger is removed from the key the parts will assume their normal positions, which are illustrated by full or continuous lines.

While I have shown the lower and middle members of the wippen as being composed of two pieces, yet it is apparent that I may make them integral without departing from the spirit of my invention.

What I claim is—

1. In a piano-action, the combination with the pivoted key, of a spring-actuated hammer-butt, a hammer connected to the butt, a wippen comprising a lower member pivotally secured near one of its ends, an upright or middle member having in its upper portion an offset or recess, and a fly or upper member pivotally connected to and extending horizontally from the upper portion of the middle member and adapted to impinge the upper forward part of the hammer-butt, the said fly having an upward extension on its forward end, a spring located between said extension and the upper part of the middle member, and a connection between the inner portion of the key and the forward portion of the lower member of the wippen, substantially as described.

2. In a piano-action, the combination with the pivoted key, of a spring-actuated hammer-butt having its front portion downwardly and forwardly inclined and from said inclined part a forward projection, a hammer connected to said butt, a wippen comprising a lower member pivotally secured near one of its ends, an upright or middle member, and a fly or upper member pivotally connected to the upper portion of the middle member and adapted to impinge the front portion of the hammer-butt, a spring between the upper portion of the fly and the upper portion of the middle member, a cushioned screw adjustably secured on the upper portion of the middle member to impinge the forward projection of the hammer-butt, and a connection between the inner portion of the key and the front portion of the lower member of the wippen, substantially as described.

3. In a piano-action, the combination with the pivoted key, of a spring-actuated hammer-butt having a forward projection, a hammer connected to said butt, a spring-actuated damper-lever suitably fulcrumed, a damper connected to the upper end of said lever, a wippen comprising a lower member pivotally secured near one of its ends, an upright or middle member having adjustable means to impinge the projection of the hammer-butt, and a fly or upper member pivotally connected to the upper portion of the middle mem-

ber, and adapted to impinge the front portion of the hammer-butt and to rest on its forward projection, a spring between the upper portion of the fly and the upper part of the middle member, a damper-spoon secured to the lower member of the wippen and resting against the lower end of the damper-lever, and a connection between the inner portion of the key and the front or outer portion of the lower member of the wippen, substantially as described.

CHARLES L. KALLSTROM.

Witnesses:

CHAS. C. TILLMAN,
A. GUSTAFSON.