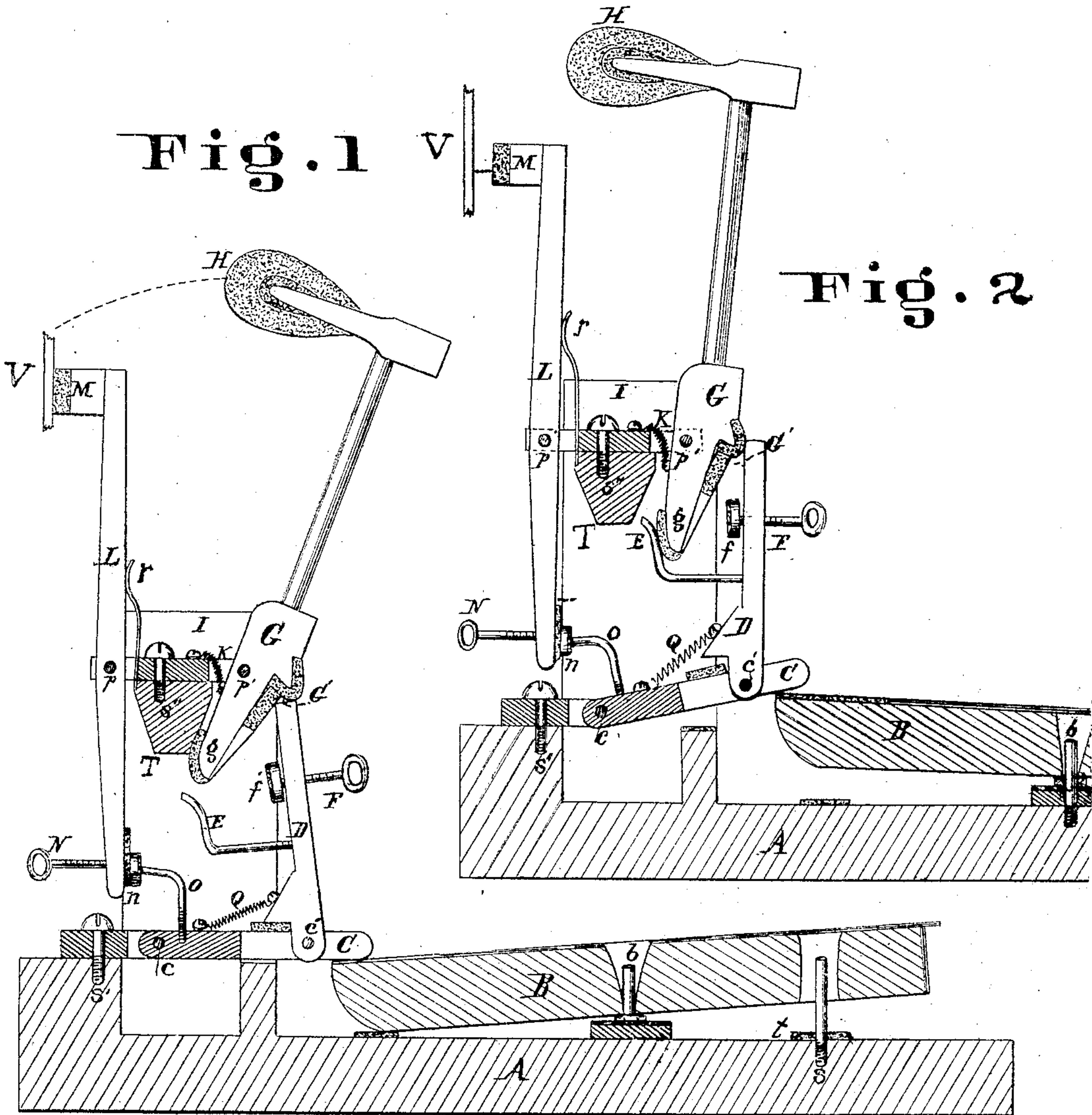


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Improvement in Upright-Piano Actions.

No. 132,557.

Patented Oct. 29, 1872.



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IMPROVEMENT IN UPRIGHT PIANO ACTIONS.

Specification forming part of Letters Patent No. 132,557, dated October 29, 1872.

To all whom it may concern:

Be it known that we, THOMAS ATKINS and HENRY DREWER, of the city of Cincinnati, State of Ohio, have invented certain Improvements in Piano Action, of which the following is a specification:

The first part of our invention relates to the construction of mechanical devices for operating and controlling the motion of hammers which are employed in piano-actions to strike strings, hooks, or other devices whose vibration produces sound, the object of this part of our invention being to simplify the devices so that the hammer may be under more perfect control of the operator, at the same time to provide a cheaper, simpler, and more durable movement, and easier of adjustment than those hitherto in use. The second part of our invention relates to the construction and arrangement of the dampers, which in pianos are applied to or removed from the vibratory devices as the keys are released or struck by the operator. The object of this part of our invention is to have a cheaper and more direct movement of the damper, which can be readily adjusted or regulated, composed of fewer devices, and suitably combined with the movement of the keys to secure the desired action, all of which will be more fully explained in the description of the accompanying drawing, in which—

Figure I represents a sectional elevation of our invention with hammer and damper in the position in which the keys are at rest. Fig. II is another view of the same, showing the position of hammer and damper when the keys are held down to prolong the tone after being struck.

A is the base of the frame, upon which the devices are mounted. B is the key, which is pivoted by *b* to the frame. S is a pin, with a cushion, *t*, to prevent noise, which would otherwise be occasioned by the movement of the key. C is a jointed lever, pivoted at *c* to the frame A, being connected by an intermediate which is secured by screw *s'*. D is a lifting-jack, secured to the lever C by pivot *c'*. E is a catch, preferably made of metal. G is the hammer-stock, which is pivoted to a cross-piece of the frame at P'. This cross-piece is again secured to the frame by the screw *s''*.

G' is a cam-notch, made in the butt of the hammer-stock so that the hammer H may be thrown forward as the jack D is elevated. The depressing of the front end of key B elevates the jack D. *g* is an elongation of the hammer-butt, of such shape and proportion that it may be suspended when the key B is depressed by means of the catch E, as shown in Fig. 2. A regulator, F, is provided with a cushion, *f*, upon the end, so that the jack D may be disengaged from the hammer the moment the key B has been depressed sufficiently to cause the hammer to strike the string or hook V, which vibrates, producing sound. This regulator F is screwed through the jack D and is turned out or in to adjust the releasing of the jack at the point desired. The parts of the apparatus in contact should be cushioned by the use of felt or other proper material, so that the movement of the devices may be noiseless. K is a spring, attached to the butt of the lever on which the hammer is placed and connecting it to the cross-piece or stationary part of the frame, and so adjusted that it will pull back the hammer as the jack and catch are depressed or withdrawn from supporting or actuating the hammer. The coiled metallic spring shown in the drawing is preferred. A similar spring, Q, connects the lever C to the jack D to facilitate the rapid descent of the jack when the key is released. M is the damper, properly cushioned in the usual manner and mounted upon a vibrating lever, L, connected to the frame by being pivoted on the cross piece, and P the pivot on which this lever turns. O is a finger, attached, as shown in the drawing, to the lever C. As the lever C is actuated by raising the forward end turning on pivot *c*, the finger O is carried forward, and, being in contact with lever L, the lower end of said lever is likewise carried forward and the damper M is withdrawn from contact with V, as shown in Fig. II. N *n* is a regulator, N being a screw passing through lever L, upon which is placed cushion *n*. The parts in contact should all be cushioned to prevent noise in moving. The object of this regulator is to permit of the movement of the damper to be regulated by adjusting the screw and cushion. *r* is a spring, attaching the lever L to the frame and so placed that the re-

coil of the spring will pull the damper M back in contact with V as soon as the key is released.

These devices are shown as adapted to upright pianos. The desired number of movements are to be arranged in the manner usually employed in other movements. We have shown what we deem the best form of attachment to the frame. Other methods may be employed instead thereof. The form, position, and the proportion of the parts may also be variously modified without effecting the substantial features and functions of our devices.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the catch E, jack D, hammer H, elongated stock *g*, spring K, and pivoted lever C, arranged substantially as described.

2. The pivoted lever C, jack D, catch E, regulator F, hammer H, butt G, and elongated hammer *g*, all combined and arranged substantially as set forth.

3. The damper M, mounted on lever L, with regulator N *n* and spring *r* for holding the damper when the key is at rest, in combination with the key B and lever C with its finger O, arranged as herein set forth for withdrawing the damper when the key is depressed.

4. The jack D, catch E, pivoted lever C, spring Q, finger O, regulator N, and lever and spring L *r*, arranged to operate both the hammer and damper in the manner herein set forth.

5. The hammer H, butt G, stock *g*, jack-catch E, and regulator F, in combination with the pivoted lever C, spring Q, finger O, lever L, spring *r*, and damper M, arranged and operating substantially as and for the purpose set forth.

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Witnesses:

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