

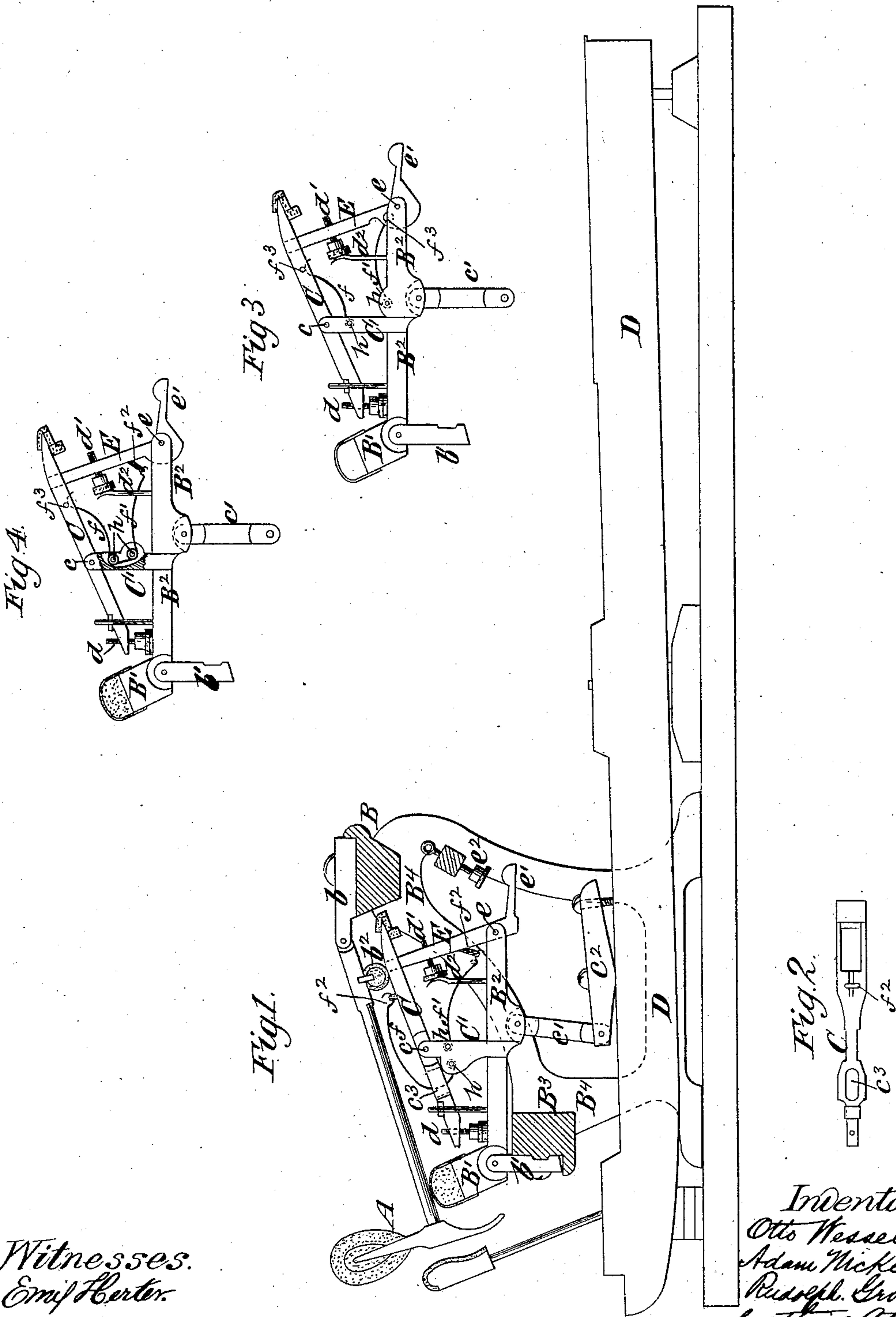
(No Model.)

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PIANO ACTION.

No. 366,360.

Patented July 12, 1887.



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PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 366,360, dated July 12, 1887.

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To all whom it may concern:

Be it known that we, OTTO WESSELL, ADAM NICKEL, and RUDOLPH GROSS, all of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Piano-Actions, of which the following is a specification.

Our invention relates to repetition actions, in which are employed a jack pivoted, usually, to a rest-support, and a repetition-lever pivoted between its ends; usually to a post rising from the rest-post; and the invention relates to a novel combination of springs with the repetition-lever and jack of such an action.

In actions of this character the proper relation between the repetition-lever and jack is commonly maintained by a regulating-screw in the repetition-lever bearing upon a rest-support; and another feature of our invention relates to a novel combination of regulating-screw and abutment with the repetition-lever, jack, and rest-support.

Our invention consists in the combination, with a repetition-lever pivoted between its ends, and with the jack of a piano-action, of independently-adjustable springs applied to said lever and jack, and which may advantageously be connected by loops or stirrups with the said lever and jack, as hereinafter particularly described.

The invention also consists in a novel combination, with the repetition-lever, the jack, and the rest-support, of a regulating-screw inserted in the jack, and an abutment for the screw, all as particularly hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents in sectional elevation a hammer, key, and the corresponding portion of the action of a grand piano, illustrating both features of our invention. Fig. 2 is a plan of the repetition-lever shown in Fig. 1; and Figs. 3 and 4 are views, similar to Fig. 1, of as much of the action as is necessary to illustrate slight modifications of our invention.

Similar letters of reference designate corresponding parts in all the figures.

A designates the hammer, secured by a flange, *b*, in the usual way to the hammer-rail B.

B' designates a hammer-rest, and B² the rest-

support, which are supported by a flange, *b'*, from the action-rail B³. The hammer-rail B and the action-rail B³ are supported by the action-brackets B⁴, in the usual way.

C designates the repetition-lever, which is fulcrumed between its ends, at *c*, in the post C', rising from the rest-support B², and through a sticker, *c'*, which is connected with a block, *c''*, upon the key-lever D, the motion of the key-lever is transmitted to the rest-support B².

E designates the jack, which is pivoted at *e* in the rest-support B², and the upper end of which projects through a slot in the repetition-lever C and bears against the knuckle *b''* of the hammer A. The jack E has the usual let-off projection or arm *e'*, which by the raising of the jack is brought in contact with the let-off screw *e''*.

In so far as described our action does not differ from those ordinarily employed in grand pianos; but the springs *f f'*, which are respectively applied to the repetition-lever C and the jack E, do differ from the springs ordinarily employed. These springs are independently adjustable—that is to say, either of them may be bent to vary its force without in any way affecting the force of the other spring. The inner ends of these springs are fixed by pins *h* in the post C', and their outer or free ends are, as here represented, connected by loops or stirrups *f''* with the repetition-lever C and the jack E. We have here shown the repetition-lever as formed with a yoke or opening, *c''*, extending through it from top to bottom, as indicated by dotted lines in Fig. 1, and as shown clearly in Fig. 2, and through this yoke or opening *c''* the lever-spring *f* extends and is curved and extends upward and forward to its point of connection with the lever C at the loop or stirrup *f''*.

In the example of the invention just described, and shown in Fig. 1, the springs *f f'* are supposed to be made separate from each other and are not connected in any way.

In the example of the invention shown in Fig. 3 the spring *f* is secured at *h* in the post C', and has a sliding bearing at *f''* upon the repetition-lever C. The spring *f'* is fixed at *h* in the rest-support B², and has a sliding bearing at its end *f''* upon the jack E. In this case both springs *f f'* are arranged vertically be-

tween the rest-support B^2 and the repetition-lever C .

In the example of the invention shown in Fig. 4 the springs $f f'$ are arranged between the repetition-lever C and the rest-support B^2 , as shown in Fig. 3, but they are both formed of a single piece of wire, the wire being coiled around two pins, h , in the post C' . Their being made of a single piece of wire, however, does not prevent their being separately bent or adjusted to vary either of them without affecting the force of the other, and they therefore in practical effect constitute two independently-adjustable springs, although they may be made of a single piece of wire. Provision for their adjustment may be secured by having the wire coiled separately around the two pins h . In this example of the invention the spring f has a sliding bearing at f^3 on the repetition-lever, while the spring f' is connected by a loop or stirrup, f^2 , with the jack, as in Fig. 1.

Referring to all the examples of our invention, it will be seen that between the rearward end of the repetition-lever C and the rest-support B^2 we have arranged the usual regulating-screw, d , and ordinarily this screw is solely relied on for varying the relation of the repetition-lever and jack. We, however, prefer to employ in addition to the regulating-screw d a regulating-screw d' , which is inserted in the jack E , and which bears upon the abutment d^2 , here shown as rising from the rest-support B^2 . This arrangement of regulating-screw and abutment is the same in the several examples of our invention shown.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, with the repetition-lever C , pivoted between its ends and the jack E of a piano-action, of independently-adjustable springs $f f'$, applied to said lever and jack, substantially as herein described.

2. The combination, with the repetition-lever C , pivoted between its ends and a jack E , of a piano-action, of independently-adjustable springs $f f'$, connected by loops or stirrups at their ends with said lever and jack, the spring f being connected with the lever in front of its pivot, substantially as herein described.

3. The combination, with the repetition-lever and jack of a piano-action, the lever being yoked or having an opening from top to bottom, of independently-adjustable springs for acting upon the lever and jack, the spring f , for the lever, being curved upward and forward through the yoke or opening in the lever and connected at its end by a loop or stirrup with the top of the lever, substantially as herein described.

4. The combination, with the repetition-lever, the jack, and the rest-support $C E B^2$, of the regulating-screw d' , inserted in the jack, and an abutment for the screw, substantially as herein described.

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