

W. G. Day,

Piano Forte Action.

No. 110,120.

Patented Dec. 13, 1870.

Fig. 1.

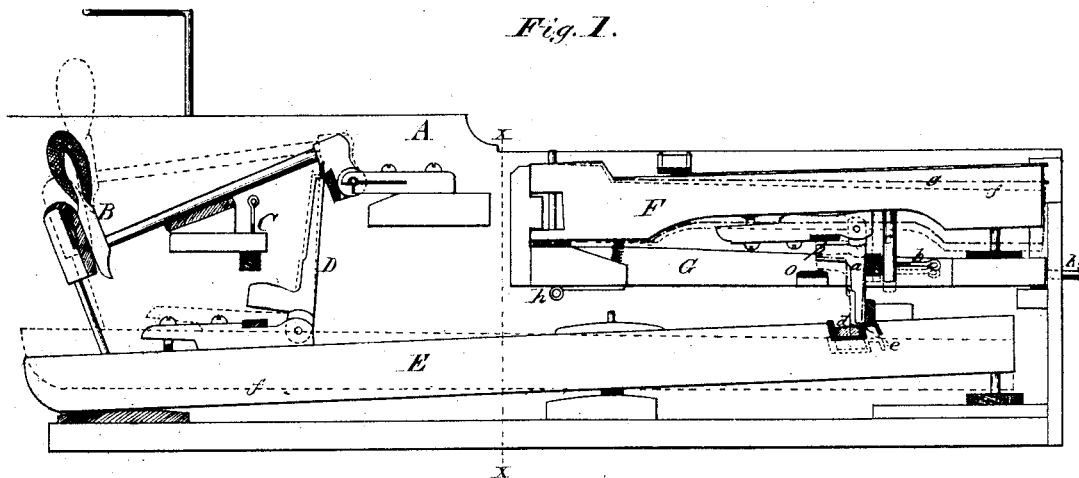


Fig. 2.

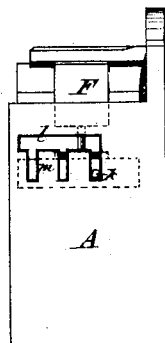
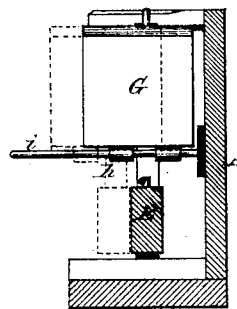


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLARD G. DAY, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PIANO-FORTE ACTIONS.

Specification forming part of Letters Patent No. 110,129, dated December 13, 1870.

To all whom it may concern:

Be it known that I, WILLARD G. DAY, of Baltimore, in the county of Baltimore and State of Maryland, have invented certain Improvements in Pianos, Organs, Melodeons, and Similar Instruments, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to pianos, melodeons, organs, and similar musical instruments; and it consists in the construction and arrangement of certain novel devices by which the keys can be made to repeat without returning to their original or normal position, and also in constructing and arranging the key-board in connection with certain devices, so that it may be easily and readily transposed.

In the drawings, Figure 1 is a transverse vertical section of an instrument showing the construction and arrangement of my improvements. Fig. 2 is a front end view of Fig. 1, showing a series of notches in the frame of the instrument in which the supporting pin or catch of the end of the key-board bears or engages; and Fig. 3 is a vertical cross-section on the line *x x* of Fig. 1.

As is well known, only grand pianos, as well as those of the more intricate and costly construction, are so made as to be "repeaters"—that is, so that the same note can be repeated, with a softer and more delicate tone, with the key before it returns to its original position.

The object of my invention is to provide devices so constructed and arranged with the ordinary parts of square or other pianos, or of organs, melodeons, and similar instruments, by which they may be converted into repeaters.

In the drawings, A represents the box or frame of an instrument in which the strings or stops and the hammers B, with their jacks D, together with the regulators C, and keys E, with accompanying cushions, are constructed and arranged in any of the usual ways, as shown in Fig. 1.

In ordinary instruments the keys E, when struck by the operator, produce a single note, and there are no means for repeating.

In order to provide the requisite devices for this purpose, the ordinary keys, E, are used as lower keys, and over their front ends is mounted a key-frame, G, in which upper

keys, F, being those touched by the operator, are pivoted in the usual manner.

The key-frame G has, on the under side of its rear end, eyes *h*, attached in any suitable manner, by means of which it is pivoted to a horizontal pin or pins, *i*, connected to the box, so that it may move laterally on the same as well as swing, for a purpose hereinafter explained.

To the under side of each key F is pivoted a jack, *a*, as shown in Fig. 1, provided with a spring, (not shown,) to hold it against the cushioned end of a regulator, *b*. This regulator is made adjustable in the usual manner, and is inserted in and through the lower end of a pendent post, *c*, rigidly attached to the under side of the key F, as shown in the same figure.

In the lower key, E, under the end of the jack *a*, there is a cushioned depression, *d*, the front end of which is provided with a bench or ledge, *e*, upon which the end or foot of the jack *a* bears or rests when the parts are all properly adjusted, as shown in said Fig. 1.

When these parts are thus constructed and properly adjusted, the instrument can be made to repeat, as will readily be seen in operating it, for as the key F is struck and driven down to give the full note it carries down with it the post *c*, the lower end of which moves in the arc of a circle and causes the regulator *b* to press against the jack *a* and shove its lower end off of the ledge *e*. The lower end of the jack then strikes into the depression *d* in the lower key, E, causing that end to descend and its opposite end to rise, and the upper end of the jack D to strike against its bearing in the cushioned notch of the hammer B, and to swing the head of the hammer against the string for giving the note. As this is done the parts are forced into the position shown by the dotted lines marked *f*. When done, by letting up the pressure on the key F until it rises to the position of the dotted lines marked *g*, the end of the key E immediately under it will follow up the lower end of the jack *a* far enough to prevent its being returned to its place on the ledge *e*, and at the same time allow its opposite end to drop far enough to permit the upper end of the jack D to again engage with the hammer, when the note can be repeated by again pressing upon the key F. As this can be readily and promptly done after allowing a slight upward movement

of the keys, it is evident that a soft and delicate note can be secured as desired.

In addition to these improvements for repeating, the key-frame G is so arranged as to be transposed. As explained above, its rear end is hinged by means of eyes to a horizontal rod, so that it may be moved or slid laterally. There may of course be more or less of these eyes, and the pins or rods about which they turn and on which they slide may be connected to the box or frame of the instrument in any suitable manner. There may be a single rod extending all the way across, or it may be in sections and attached at its ends, as shown in Fig. 3.

To the front end of the key-frame is connected a pin, *k*, long enough to extend through an elongated horizontal opening, *l*, in the front of the box, and drop into notches *m* in the lower side of said opening, as clearly shown in Fig. 2.

Extending across the lower side of the key-frame G is a cross-piece, *o*, having its upper side cushioned and arranged so as to be under the arm *p* of the jack *a*, as shown in Fig. 1, for a purpose hereinafter explained.

When it is desired to transpose the upper keys, F, so that their jacks *a* shall bear upon the next adjoining lower keys, E, or even farther, it is only necessary to raise up the catch-pin *k*, which causes the cross-bar *o* to bear against the arms *p* of the jacks *a*, and frees the feet of the jacks from their bearings, and then to slide the key-frame laterally until the catch-pin *k* can drop into another of the notches *m*, these notches being on a line with the keys E. In this way it will be seen that the key-frame

can be readily transposed from one set of lower keys to another readily and conveniently.

As the catch-pin *k* projects a little beyond the face of the instrument, a hole or socket may be made for it in the inner face of the lid, both for the purpose of allowing the lid to fit close to the face of the instrument, and also for the purpose of holding the pin, and with it the key, firm in position when the instrument is packed and being moved.

Having thus described my invention, what I claim is—

1. The combination of the keys F, provided with the regulators *b* and pivoted jacks *a*, with the keys E, provided with the ledge *e*, constructed substantially as described, and for the purpose set forth.

2. The combination of the upper and lower keys, E and F, with the jack *a*, pivoted to the former and between their front ends, as and for the purpose set forth.

3. The key-frame G, having its rear end attached to and arranged to slide laterally upon its connections, and its front end provided with a catch-pin, *k*, in combination with the opening *l*, provided with the notches *m* in the front side of the case of the instrument, substantially as and for the purpose set forth.

4. In combination with the key-frame G, arranged to move laterally, and having its keys F provided with the pivoted jacks *a*, the cross-bar *o*, as and for the purpose set forth.

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Witnesses:

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