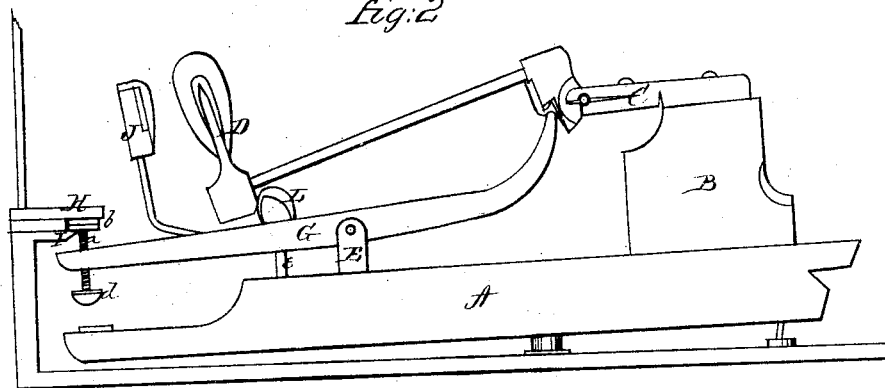
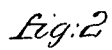


*Patented Apr. 18. 1871.*



Chas. L. Evert,  
A. N. Harr

Inventor.  
Gazee B. Mc Gregor  
per  
Alexander Mason  
attys.

# United States Patent Office.

FRAZEE B. MCGREGOR, OF PONTIAC, MICHIGAN, ASSIGNOR TO HIMSELF  
AND GEORGE A. HOYT, OF SAME PLACE.

Letters Patent No. 113,785, dated April 18, 1871.

## IMPROVEMENT IN PIANO-FORTE ACTIONS.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern:*

Be it known that I, FRAZEE B. MCGREGOR, of Pontiac, in the county of Oakland and in the State of Michigan, have invented certain new and useful Improvements in Pianos; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

My present invention is intended as an improvement on the patent for piano-action granted to me December 6, 1870; and consists in certain additions to the same, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side view showing the position when the key has just been struck, and

Figure 2 is a similar view showing the parts when at rest.

A represents the key; B, the block on the same, with the hinge C, to which the hammer D is hinged; E is the fulcrum on the key A, to which the lever G is pivoted; and H is the combination-bar—all of which parts are constructed and arranged in relation to each other substantially in the same manner as described in my former patent above referred to.

The rear end of the lever G in this case rested against the under side of the combination-bar H, and it was found that sometimes when the same key was struck several times rapidly in succession it would not be in its proper place, and hence there would be a delay in certain notes.

To remedy this defect I have placed an additional bar, I, a suitable distance below and parallel with the combination-bar H, leaving, as it were, an open groove between them.

Through the rear end of the lever G is passed a screw, *a*, with a padded button, *b*, at its upper end, said button being inserted between the bars H and I, as shown.

By this means the lever is always held in proper position for instant work, and cannot drop down so as to be out of place.

The screw *a* also answers another purpose, namely, to regulate the blow, by having a padded button, *d*, on the lower end of the screw, and the rear end of the key A striking the same.

It will readily be seen that, by turning the screw *a* so as to increase or diminish the distance between the

rear end of the key and the button *d*, the blow may be regulated at will.

In striking a hard blow on the key I also found that the hammer would vibrate up and down, and in some cases would strike the string more than once.

To obviate this difficulty I have applied the back-check J, which is attached to a lever, K, placed in a recess or mortise on the lever G, and hinged or pivoted at its forward end in said recess or mortise.

The lever K is then, by a rod, *e*, connected with the key A, so that when a blow is struck on the key this back-check will fly up, as shown in fig. 1.

The back-check J catches on the rear side of the hammer, as shown in said figure, almost instantly as the hammer has touched the string, and holds the hammer, preventing its vibration, the hammer being, of course, just a trifle below the string.

In place of having the lever K within a recess or mortise in the lever G, it may be hinged on top of the same, which would answer the same purpose, and hence I do not confine myself to any particular location of said lever.

On the lever G I have also placed a hammer-rest, L, against which the lower front corner of the hammer strikes when the finger is removed from the key, instead of having the hammer rest upon its entire lower side, as in my former patent.

This hammer-rest will hold the hammer perfectly stationary and prevent its vibration, and at the same time will not bind so as to prevent the free working of the hammer when the key is struck.

It will also be noticed that these additions do not prevent me from removing any individual key with the entire mechanism belonging thereto, if necessary.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The screw *a*, with buttons *b d* arranged through the rear end of the lever G, and operating in combination with the combination-bar H, bar I, and key A, substantially as and for the purposes herein set forth.

2. The back-check J and lever K, hinged or pivoted within or upon the lever G, and operated by the motion of the key, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of February, 1871.

F. B. MCGREGOR.

Witnesses:

C. L. EVERT,  
A. N. MARR.