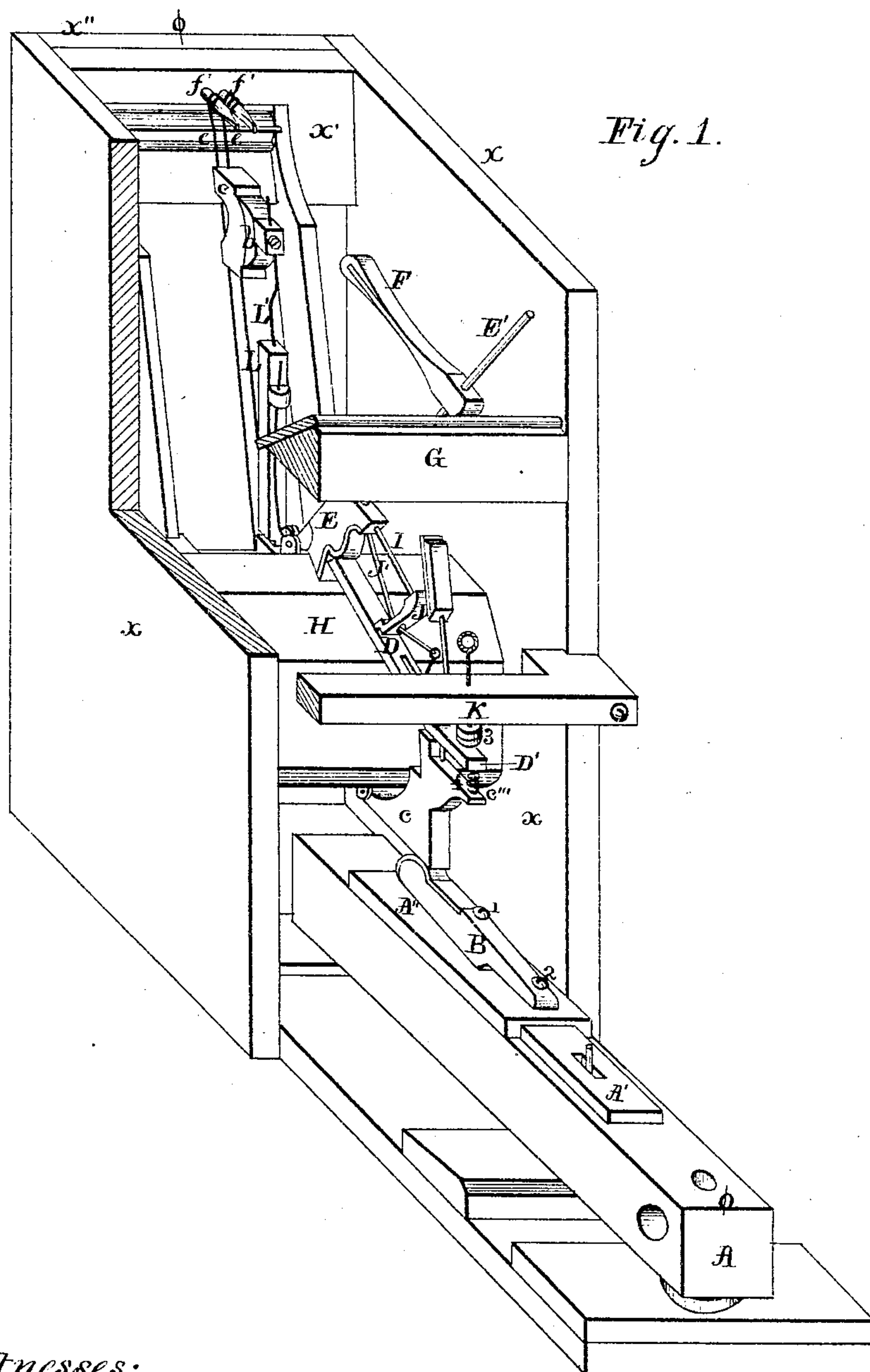


G. TRAYSER.

UPRIGHT PIANO ACTION.

No. 182,872.

Patented Oct. 3, 1876.



*Witnesses:*

Thomas F. Johnston.  
Wm. J. Dennis.

*Inventor:*

George Trayer.







# UNITED STATES PATENT OFFICE.

GEORGE TRAYSER, OF RICHMOND, INDIANA.

## IMPROVEMENT IN UPRIGHT-PIANO ACTIONS.

Specification forming part of Letters Patent No. **182,872**, dated October 3, 1876; application filed April 12, 1876.

*To all whom it may concern:*

Be it known that I, GEORGE TRAYSER, of Richmond, Indiana, have invented certain new and useful Improvements in Actions for Piano-Fortes; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the drawings which accompany this specification, and forming a part thereof, and to the letters of reference marked thereon.

Sheet 1—Figure 1 is a perspective view of my improvement, including the casing to which it is attached. Sheet 2—Fig. 2 is a vertical sectional view from  $\phi$  to  $\phi$ . Sheet 3—Fig. 3 is a rear elevation, showing the back portion of the casing as swung back on hinges, with the devices attached to the same, as hereinafter set forth.

My improvement, as shown, is designed for upright pianos, and is adapted to that class which are constructed with the rear portion of the case capable of being detached or opened by means of hinges or otherwise.

My invention consists, first, in constructing the hammer-rail separate and detached from the damper-rail and its supports, and in the manner of attaching the hammer-butt to the hammer-rail; second, in the employment of a rocker-arm, by the action of which the hammer and damper are operated simultaneously; third, in the use of improved devices to regulate and control the action of the hammer-butt and hammer; fourth, in the construction and operation of the jack in connection with the hammer-butt, by which quicker and stronger action of the hammer is produced; fifth, in so arranging the action in relation to the metallic-frame sounding-board strings and damper that when the rear portion of the piano is swung back, or otherwise in any manner detached, the different parts are easy of access for alteration or repairs.

To enable those skilled in the art to make and use my said invention, I will proceed to describe the same.

In Sheet 1, Fig. 1,  $x$  represent a casing;  $x'$ , the wrest-plank, and  $x''$  the rear or back of a piano constructed so as to open on hinges, or otherwise. A is the key. A' is a cap-block, through which the guide-pin passes; A'', a similar cap-block, to which the adjustable lever

B is secured, both of said blocks being secured to the key A. In Fig. 2, Sheet 2, C is an upright post, hinged to the jack D at the upper end, and resting upon the lever B at its lower end. It is attached to, and forms a part of, the rocker-arm C'. A lug, C''', projects from the upper portion, immediately underneath and parallel with the end D' of the jack D, between which and the lug C''' is a spring, 4. The rocker-arm C' is hinged at N to an upright standard, Q, and is provided with an arm, C''. The jack D is in an angular position from the hinge of the post C, the upper end resting in a notch in the hammer-butt E. The vertical motion of the jack D is regulated by a set-screw, 3, passing through the cross-bar K. The jack D is slotted each side of its hinge, through which standards pass, as hereinafter described. The hammer-butt E is immediately above the hammer-rail H, and hinged to the standard R, which is attached to the back side of the hammer-rail in any suitable manner. The lower front surface of the hammer-butt is provided with a notch or recess to receive the upper end of the jack D, by which it is operated. The upper end receives the hammer-shaft, while the upper front surface has inserted at right angles a stay-rod, I, provided with a stay-arm, J, rounded in front at the upper end. A check-strap, J', attached to the upper portion of the hammer-butt, passes through an opening in the lower end of the stay-arm J, and is connected with a standard, 5, which is attached to, and operated by, the rocker-arm C'. The rubber pad S is attached to a standard which is attached to, and operated by, the lug C''' by means of the post C and rocker-arm C'. As the hammer F is thrown against the strings the stay-arm J is brought in contact with the rubber pad S, thus holding the hammer in position until the pressure on the key is relaxed, when the hammer falls back on the surface of the hammer-rest G. The damper-rail M is attached to the rear casing in any suitable manner, and is provided with a lug, i, to which is hinged the upright damper-shaft L on the back side of the damper-rail. The lower end of the shaft L is operated by the arm C'' of the rocker-arm C' removing the damper-pad attached to its upper end from the strings while the pressure



exists. The spring *d*, secured to the lug *i* at *p*, returns the damper-pad *c b* to the strings by its operation on the damper-shaft above the hinge. The strings are secured by pins *f*, inserted in the wrest-plank in the usual manner.

The operation of my improvements is as follows: Pressing the front end of the key raises the rear end and its attachments, carrying up the post *C* and its connections, communicating to the jack *D* an oblique upward motion against the hammer-butt *E*, (in the notch of which it rests,) producing the stroke of the hammer *F* on the strings; then, passing, it is freed from the hammer-butt, which is held in position by the stay-arm *J* and rubber pad *S*. When the pressure is taken from the key these devices resume their original position, the hammer-butt being aided by the check-strap *J'*. The front end of the rocker-arm *C'* is raised by being attached to the post *C*, while the rear end is depressed, giving the arm *C''* a backward motion, carrying with it the lower end of the damper-shaft *L*, removing the damper from the strings. When the lower end of the damper-shaft is relieved of the pressure by the arm

*C''* the damper is brought to bear upon the strings by the spring *d*.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The damper-rail *M*, made separate from the rest of the action and its supports, and combined with the detachable swinging frame *x''*, substantially as specified.

2. In combination, with the key *A* and damper-lever *L*, the double rocker-arm *C' C''*, all constructed and arranged to operate substantially as described.

3. In combination, with the key *A*, damper-lever *L*, and hammer *F*, the post *C* and double rocker-arm *C' C''*, substantially as described.

4. In combination, with the key *A*, damper-lever *L*, and hammer *F*, the double rocker-arm *C' C''*, the post *C*, and jack *D D'*, substantially as described.

GEORGE TRAYSER.

Witnesses:

WM. T. DENNIS,  
THOMAS F. JOHNSTON.