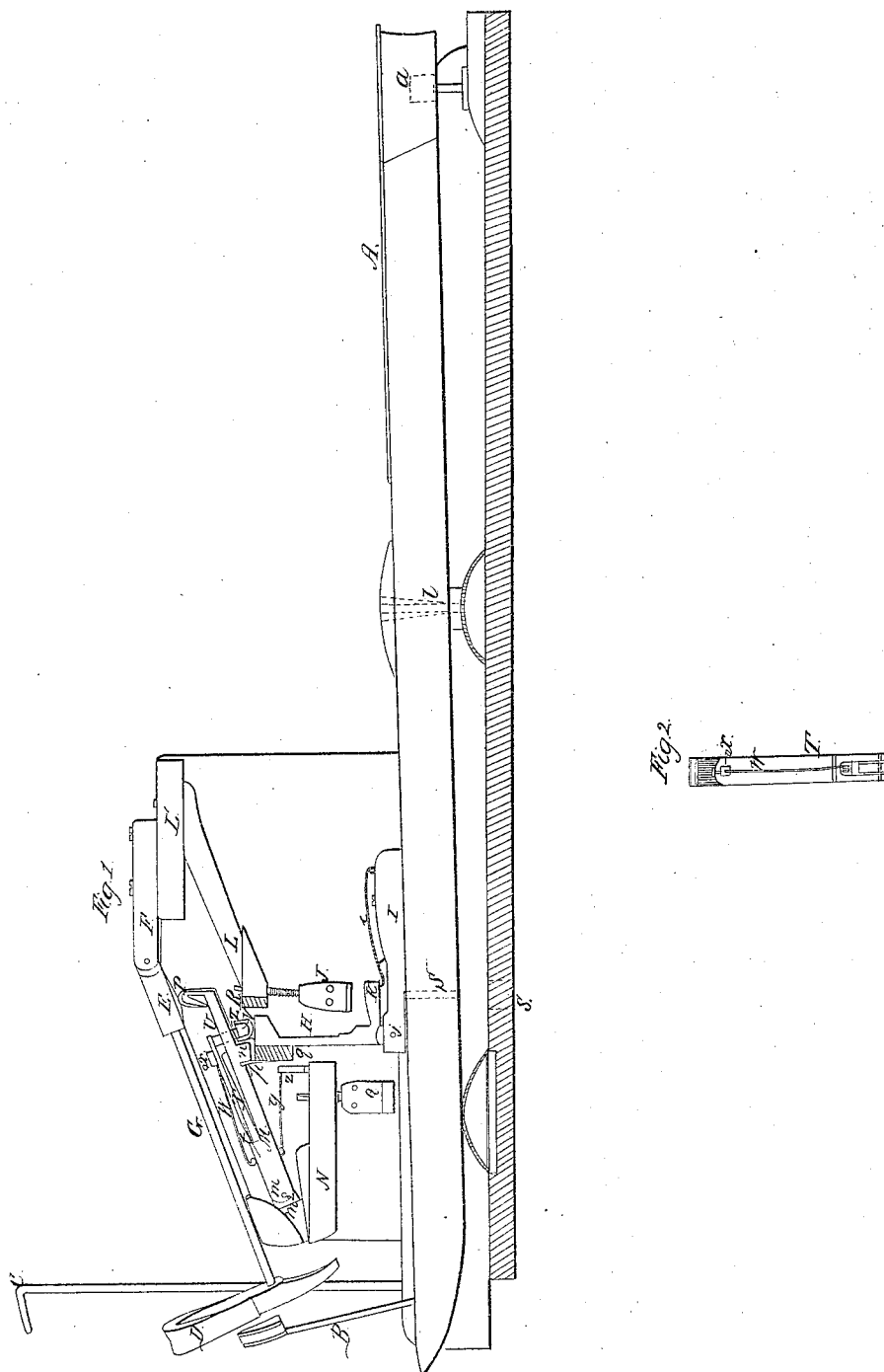


*J. Ruck,*  
*Piano Action,*  
*No 7,292,* *Patented Apr. 16, 1850.*



# UNITED STATES PATENT OFFICE.

JOHN RUCK, OF NEW YORK, N. Y.

## PIANOFORTE-ACTION.

Specification of Letters Patent No. 7,292, dated April 16, 1850.

*To all whom it may concern:*

Be it known that I, JOHN RUCK, of the city, county, and State of New York, have invented a new and useful Improvement on the Striking Parts of Pianofortes; and I hereby do declare that the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which—

10 Figure 1 is a side elevation and Fig. 2 is a top view of the spring tongue.

The same letters refer to like parts.

1st. The nature of my invention consists in providing, what I term a repeating spring tongue, to prevent the hammer from being disconnected with the fly lever after the hammer has made a strike.

2nd. To provide a regulating pin or screw for the inner end of the lever of each key, to regulate the length of, or strength of the stroke to each key.

3d. To provide a regulating set screw, to regulate the height of the fly lever.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

The parts represented in the drawings are secured on a side piece and bottom piece.

A, is the key and lever.

30 B, is the check.

C, represents the string.

D, is the hammer.

E, is the hammer butt.

F, is the hinge butt.

35 G, is the hammer shank.

H, is the fly lever.

I, is the fly lever bed with a small spring (i), upon it.

40 (j) is a pivot joint on which the fly lever rests and vibrates.

(K), is the foot and part of the fly lever.

J, is a regulating screw, secured on the support rail L. This support rail is united to another rail L', which is secured on the side piece. The regulating screw J, has a knob on its lower extremity which is covered on its face with some soft substance. This screw regulates the vibratory length of the stroke of the foot (K), and thus directs the stroke of the top of the fly lever.

50 (l), is the center pin of the key lever.

(a), is the guide pin.

These are common devices, and need not be further described.

55 M, is what is termed the angular under lever (and by some is termed "the under

hammer)." It is fixed on a pivot joint (m), which is secured on a shoulder (m<sup>2</sup>) of the rail N, the said rail is secured on the side piece. The under lever is made with a small shoulder or projection (n), and a vertical flange (p), which form a notch that is lined with some suitable soft substance (q). P, is the bill or head of the angular under lever. The hammer butt E, rests on this head when the key is out of action, and it actuates the hammer by means of the fly lever when the key is operated. The fly lever is thrown up by the key, and the angular under lever is thrown up also, throwing up the hammer D, against the string C.

Q, is a regulating screw, fastened on the rail N. It is made like the screw J, and is lined with a cushion on its bottom. When the key is pressed by the operator, the lever strikes the bottom of Q, therefore as this screw is set, the end of the lever with the check B, on it, will be regulated in the distance to which it (the check) is raised. The check must be raised so far as to allow the lower end of the hammer D, to fall gently on it sliding down on the face of the check cushion to prevent jarring. In other piano actions, all the levers are regulated at this point by a screw rail or bar, which is objectionable, as one key lever, may require to be regulated, and no more which cannot be done in the said pianos.

All parts of the action of piano fortes that strike other parts must have soft substance interposed, to prevent jarring.

S, is a set screw passing through the bottom piece and through an opening in the lever of the key into the bed I, of the fly lever. This set screw is to set the fly lever to its proper height. If the fly levers are not all set to a proper height, the instrument will not operate correctly.

In those piano fortes, now in use, no plan is used to set each fly lever, as required, which is often very necessary. This set screw accomplishes this object in a very simple manner.

The part that is of great importance, is a spring tongue which I combine with the under lever, to produce a better repeat with the hammer, by preventing the fly lever from being thrown out of action with the under lever M, so as to enable the performer to have complete control of the hammer, at all times, by the most delicate and repeated touches on the key.

T, is the tongue. It is made of a thin strip of wood. It is jointed by a parchment joint to the top of the under lever in the notch (t). It extends forward, and  
 5 has a plate (U), secured to its under side. This palate extends through a slit in the under lever M, and it has a cushioned hood V, on its extremity. This hood slightly presses on the top of the fly lever. W, is a  
 10 wire spring secured at the butt of the under lever, and it presses on the top of the tongue at X. This tongue therefore with its palate, is elastic, and rises upward when pressed by the top of the fly lever, but it always  
 15 presses on the top of the said fly lever, and therefore the said fly lever is always in action with the under lever, to actuate the hammer. In all piano fortes now in use this tongue is unknown, but with the other  
 20 parts of the under lever the same as mine. The evil in the action of said piano fortes is this: When the fly lever is thrown up against the projection (v), on the under lever, the top of the said fly lever is forced  
 25 outward against the cushion R, upon the rail, therefore the fly lever goes into the notch Z, the under lever suddenly drops,

and the hammer also, and thus the key and hammer are put out of action, and the performer cannot produce a rapid and delicate  
 30 repeat. By my invention, the fly lever is never out of action with the under lever and there is no sudden jarring, by the dropping of the hammer.

y is a small spring attached to the bar  
 35 z. It presses against the bottom of the lever M to keep the said lever delicately in contact with the butt of the hammer.

Having thus explained my invention, which I term, "the double-repeat-grand-ac-  
 40 tion," I claim—

1. The spring tongue, in combination with the under angular lever M, for the purpose set forth, not limiting myself to the exact construction of it as herein de-  
 45 scribed, while the same effects, by a like combination may be produced.

2. I claim the regulating screw Q, for the purpose set forth, viz, to regulate the strike key separately as set forth.

JOHN RUCK.

Witnesses:

O. D. MUNN,  
 S. H. WALES.