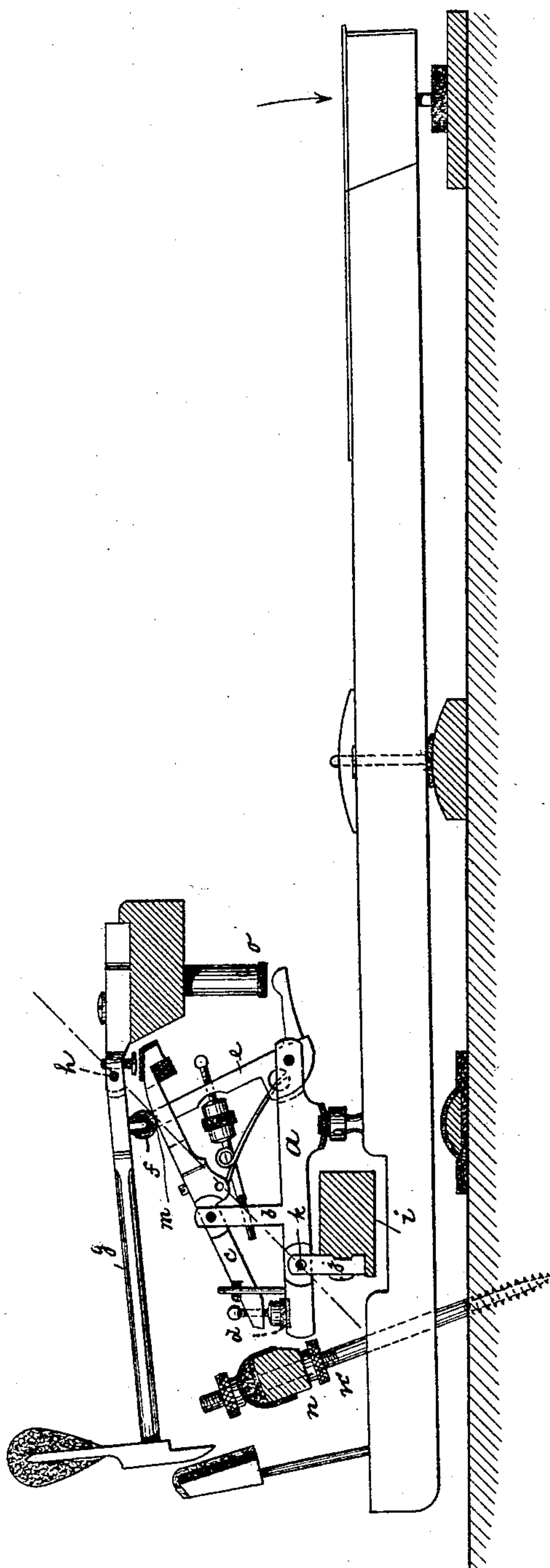


(No Model.)

J. HERRBURGER.  
ACTION FOR GRAND PIANOS.

No. 559,706.

Patented May 5, 1896.



*Witnesses:*

John Becker.  
W. G. Whiting

*Inventor:*

Joseph Herrburger  
by his attorneys  
Roder & Briesand

# UNITED STATES PATENT OFFICE.

JOSEPH HERRBURGER, OF PARIS, FRANCE.

## ACTION FOR GRAND PIANOS.

SPECIFICATION forming part of Letters Patent No. 559,706, dated May 5, 1896.

Application filed March 4, 1896. Serial No. 581,731. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH HERRBURGER, a citizen of France, and a resident of Paris, France, have invented certain new and useful Improvements in Actions for Grand Pianos, of which the following is a specification.

This invention relates to an improved action for grand pianos, and has for its object to decrease the amount of frictional contact between the jack and repeating-piece and the knuckle of the hammer, so that a lighter and more powerful touch is obtained.

The invention consists more particularly in pivoting the rider to its rail, not at its end, as heretofore, but at a point intermediate between the rider-post and the supporting-button for the repeating-piece. In this way I can so place the rider-pivot that a straight line drawn from it to the hammer-pivot will pass through the contact-point between the hammer-knuckle and the jack when the hammer is at half-course. Thus the jack and knuckle swing in the radii of two tangential circles, and therefore their contact is of the most perfect kind and the jack will not begin to slide away from the knuckle until it touches its regulating-button, thereby giving the action great power.

The accompanying drawing represents a side elevation, partly in section, of my improved piano-action, showing the hammer at half-course.

The letter *a* represents the rider of a grand-piano action provided with the post *b*, to which is pivoted the repeating-lever *c*, having supporting-button *d*.

*e* is the jack that engages the knuckle *f* of the hammer *g*, pivoted to its rail at *h*, all as usual.

Heretofore the rider *a* was pivoted by its flange *j* to the rail *i* at its end—*i. e.*, at the rear of the supporting-button *d*—so that such button and the post *b* were placed at the same side of the pivot. I propose to change this construction and to pivot the rider to its flange *j* at a point *k* between the button *d* and the post *b*. This point is so selected that when the hammer is at half-course a line drawn from the pivot *k* to the pivot *h* will pass through

the contact-point *m* between jack and hammer-knuckle. In other words, two circles drawn around the centers *k* and *h* with radii *km* and *hm*, respectively, will be tangent at *m*. Now it is clear that as the jack *e* and knuckle *f* are carried around the centers *k* and *h*, respectively, there will be a rolling but not a sliding movement of the knuckle upon the end of the jack and upon the repeating-piece until the jack is bodily drawn away by its button *o*, and consequently the friction between knuckle, repeating-piece, and jack is greatly reduced and the touch is lightened. Moreover, as the knuckle does not move or swing away from the jack, but rolls upon it, the action retains its full power until escape-ment is effected. The hammer-cushions are not placed upon the rear of the rider, as usual, but a continuous cushion-rail *n* is placed upon regulating-screws *n'*, permitting the rail to be regulated up and down and attached independently to the frame of the action a short distance back of the rider. This construction is adopted for the reason that the rear end of my rider vibrates through an arc of considerable extent and would therefore not form a proper or stable support for the rail.

What I claim is—

1. In an action for grand pianos having a hammer and jack, a rider pivoted to its support in line with the hammer-pivot and also with the contact-point between hammer and jack, substantially as specified.

2. In an action for grand pianos, a rider pivoted to its support between the supporting-button of the repeating-piece and the rider-post, substantially as specified.

3. An action for grand pianos having a rider pivoted to its support between the supporting-button of the repeating-piece and the rider-post, and a hammer-rest placed back of the rider, substantially as specified.

Signed at Paris, France, this 15th day of January, A. D. 1896.

JOSEPH HERRBURGER.

Witnesses:

H. WETZ,  
R. GERVAI.