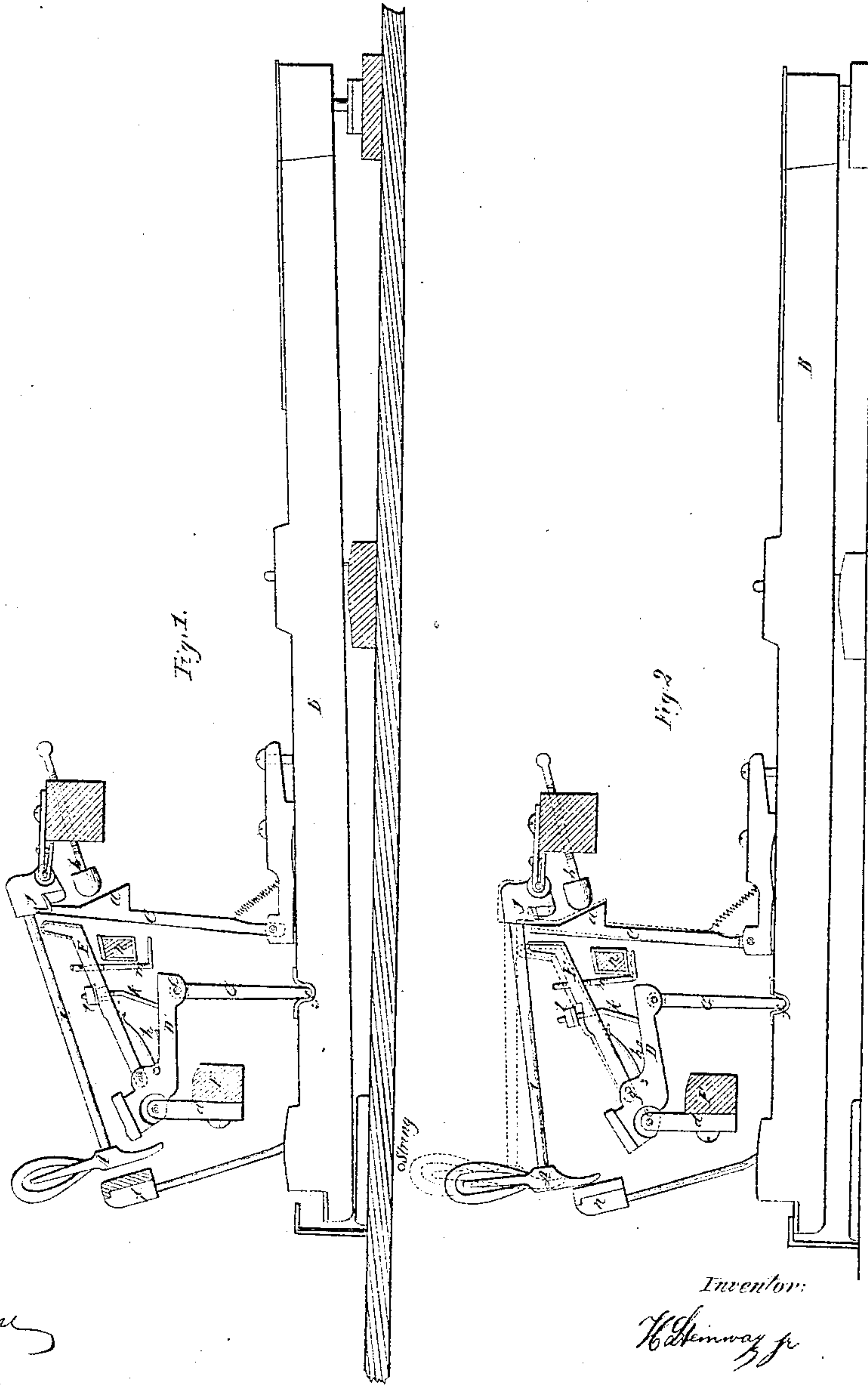


*H. Steinway, Jr.*

*Piano Action.*

N<sup>o</sup> 34,910.

*Patented Apr. 8, 1862.*



*Witnesses:*

Edmund  
E. H. Hodgson

Inventor:

W Steinway & Co

# UNITED STATES PATENT OFFICE.

HENRY STEINWAY, JR., OF NEW YORK, N. Y.

## IMPROVEMENT IN PIANO-FORTE ACTIONS.

Specification forming part of Letters Patent No. 34,910, dated April 8, 1862.

*To all whom it may concern:*

Be it known that I, HENRY STEINWAY, JR., of the city, county, and State of New York, have invented a new and useful Improvement in Piano-Forte Actions; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of an action with my improvement, exhibiting it at rest. Fig. 2 is a similar view exhibiting it with the key depressed.

Similar letters of reference indicate corresponding parts in the two figures.

In all the best piano-forte actions there is what is variously known as the "repeating-lever," "repeat-spring," "repeating device," "repetition movement," &c.—that is to say, a device or mechanism by which the hammer, after striking, is arrested in or brought to a position very near the string, and there so supported that by a very slight rise of the playing end of the key the jack may be allowed to fall into its operative position. In the actions heretofore constructed this device or mechanism is either carried by the jack or in some way connected therewith or dependent thereon for its operation.

This invention consists principally in so constructing and applying such device or mechanism that it is entirely independent of the jack, thereby not only making the said device or mechanism more free and yet more positive in its operation, but allowing the jack to operate with greater freedom and certainty and giving a better "touch" to the action.

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

A is the hammer, B the key, and C the jack, all constructed and applied in substantially the same manner as in the actions in most common use in this country, except that the jack is made without a heel and has an inclined block *a* on its front side for its regulating-screw *b* to act upon, which is now also a well-known construction.

D and E are levers which constitute two of the principal parts of the repetition movement, both arranged under the hammer-shank. The lever D is pivoted at its rear

end by a pin *c* to a post *d*, that is secured to a fixed rail F, and the said lever is pivoted at its front end by a pin *e* to the upper end of a post G, the lower end of which rests in a notch *f*, provided for its reception in the key at a short distance behind the jack. The lever E is situated between the lever D and the hammer-shank, and is pivoted at its rear end to the lever D, at a short distance in front of the fulcrum-pin *c* of the latter, by a pin *g*. Between the said levers D and E there is placed a spring *h*, which presses the lever E upward, and, except at the moment of the hammer striking the string, keeps the front end of the said lever in contact with a flattened portion of the bottom of the hammer-shank *i*, near the butt *j*. The front end of the lever E is turned up to present a narrow surface to the hammer-shank, covered with leather or other soft material. The spring *h* must be strong enough to bear the weight of the hammer as well as that of the lever E. The length of the lever E must be such that working with the lever D on the fulcrum *c* its front end or point, which is in contact with the hammer-shank, must coincide with the movement of the point of the jack, so that the said lever, while leaving the greater portion of the weight of the hammer on the jack up to the time of the escape of the latter, will follow the shank closely, to be in readiness to support the hammer near the string after the escape.

*k* is a screw screwed firmly into the lever D, passing through a hole in the lever E, and fitted with a nut or button *l* above the latter lever, for the purpose of adjusting the lever E relatively to the hammer-shank, that it may work close to it and yet not press it too hard during the time the jack is in action.

*m* is a regulating-screw screwed into the lever E, for the purpose of regulating the highest position of the said lever. This screw has a hook at the bottom which stops the ascent of the lever beyond a certain height by coming in contact with the bottom of a fixed rail *n*.

While the key is at rest, as shown in Fig. 1, the lever E is held by the button *l*, so that it just touches the hammer-shank. As the front end of the key is depressed in playing and the jack throws up the hammer, the hammer-shank is followed closely by the point of



the lever E until just as the jack is about escaping, when the screw *m* comes into contact with the rails *n* and stops the said lever. After the hammer has struck the string it falls on the lever E, and if the blow has been a very light one the said lever at once arrests the hammer very near the string, as shown in red outline in Fig. 2, and so allows the jack at once to fall back partly under or into its notch in the hammer-butt; but if the blow has been a heavy one the recoil of the hammer overcomes the action of the spring *h* on the lever and causes it (the hammer) to fall as far as the back-check *p*, by which it is held, as shown in black outline in Fig. 2, until a slight rise of the front end of the key is permitted by the plunger, when the hammer, being liberated from the back-check, is raised by the spring *h*, acting through the lever E, to the position near the string shown in red outline, and the jack is permitted to fall back partly under or into the notch of the hammer-

butt, as before mentioned. The slightest farther rise of the playing end of the key permits the jack to pass under or into the notch of the butt as far as is necessary to effect the repetition of the blow, which may be continued by a very slight movement of the key.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The arrangement of the levers D E, post G, spring *h*, and screw *k* relatively to the key, the jack, and the hammer, substantially as herein set forth.

2. The arrangement of the regulating screw *m* and fixed rail *n*, in combination with each other, and the lever E, substantially as herein set forth.

H. STEINWAY, JR.

Witnesses:

O. D. MUNN,

E. W. HODGSON.