



# UNITED STATES PATENT OFFICE.

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## PIANO-ACTION.

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*To all whom it may concern:*

Be it known that I, TORQUATO TASSO FISCHER, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Piano-Actions, of which the following is a full, clear, and exact description.

Reference is had to the accompanying drawings, wherein—

Figure 1 is a side view partly in section, of a sufficient number of parts to illustrate my invention. Fig. 2 is a like view of a modification thereof.

My invention relates to piano actions of a character known as grand action. Heretofore in such actions it has been common to so construct the parts that the spring which controlled the repetition lever or restored the same to its normal position was located above it, between it and the hammer. This spring was passed from above the repetition lever down through a perforation therein and secured to the whip by a loop or otherwise. It has also been common to place the spring beneath the repetition lever, between it and the jack, but in such a manner that the spring extended upon but one side of the supporting post, giving but a comparatively short length of spring. Much difficulty has been found in this and other character of actions, because of the necessary rigidity thereof, due to the construction and location of the spring which controls the repetition lever. Furthermore, in some of the old forms of actions above referred to much difficulty was found in adjusting the screw or other means which controlled the tension of the spring and by perforating the repetition lever for the passage of the spring which controlled it, the strength of the repetition lever was necessarily weakened requiring that it be made larger than would otherwise have been necessary.

The object of my invention is to overcome these and other defects found in actions heretofore made, and to this end I construct the device hereinafter described, and illustrated on the accompanying drawings.

In the drawings, A represents a hammer-

rail of a piano, to which is pivoted the butt of a suitable hammer B. Below and supporting the hammer B, as at *a*, is a repetition lever C which is pivoted at *x* to an upright standard *b* projecting from a whip, which standard is perforated as at *c*, for the passage of a spring as will be hereinafter more fully described. The whip D is pivoted as shown at *z* to a whip rail E and is operated in the usual manner by a key F.

In Fig. 1 which is my preferred form, I have shown a spring *d* of the repetition lever connected to the standard *e*, the tension of said spring being capable of adjustment by means of a screw *f* carried by said standard or otherwise. The free end of this spring engages in a loop *g* upon the lower end of the repetition lever and thus retains the upper end elevated so as to support the hammer. A perforation is located in the upper end of the repetition lever for the passage of a jack *h*, so that when the whip D is operated by the key F, the jack *h* will be lifted operating the hammer in the usual manner.

In Fig. 2 I have shown a modified form of my invention, wherein the spring *d*, which controls the repetition lever, instead of being secured to the standard *e*, as in Fig. 1, is secured to the said lever above the pivotal point *x* thereof and passes through the perforation *c* in the standard and is secured to a loop *i*, extending from the whip D.

It will be observed that by my invention I am enabled to get a longer sweep of spring for the repetition lever, and thereby allow of greater elasticity than has been had heretofore, which in devices of this character is essential, since, as before stated, it allows of a freer action, overcoming the objectionable feature of rigidity in devices heretofore constructed.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a piano action, the combination of a repetition lever, a perforated standard on which said lever is pivoted and supported, and a spring connected to one end thereof and passing through the perforation in said standard to a connection at the opposite side

thereof and means for adjusting said spring, substantially as and for the purpose specified.

2. In a piano action, the combination of a whip, a perforated standard secured thereto, a repetition lever pivoted to and supported by said standard, a spring connected to one end of said repetition lever, and secured at its other end to a second standard projecting from the whip on the opposite end thereof

from that near which the spring is secured to the repetition lever, and means for adjusting the spring, substantially as and for the purpose specified.

TORQUATO TASSO FISCHER.

Witnesses:

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