N. M. Lowe,

Piano Action,

No. 14,509. Patented Mar. 25, 1856.

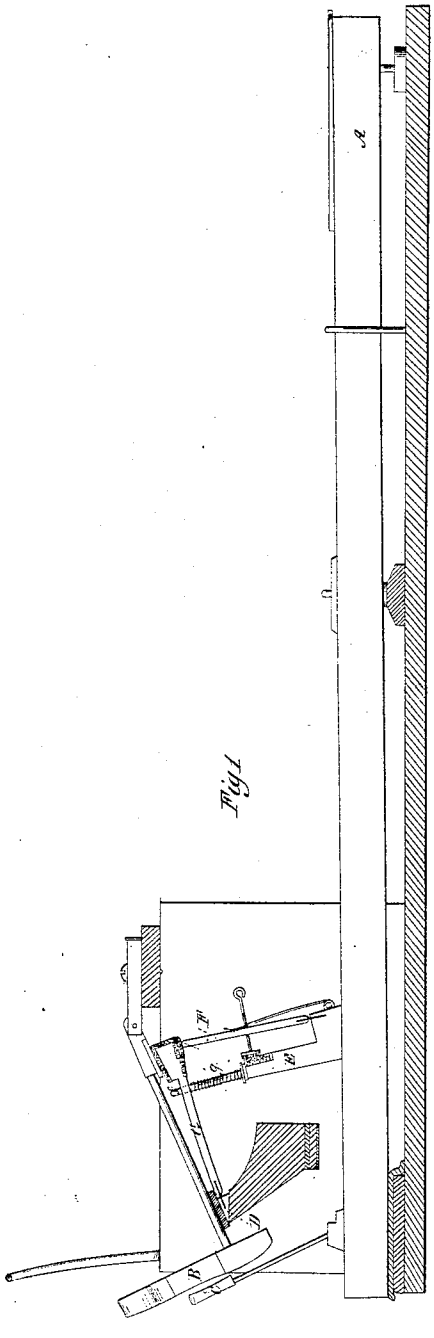

Fig. 1.

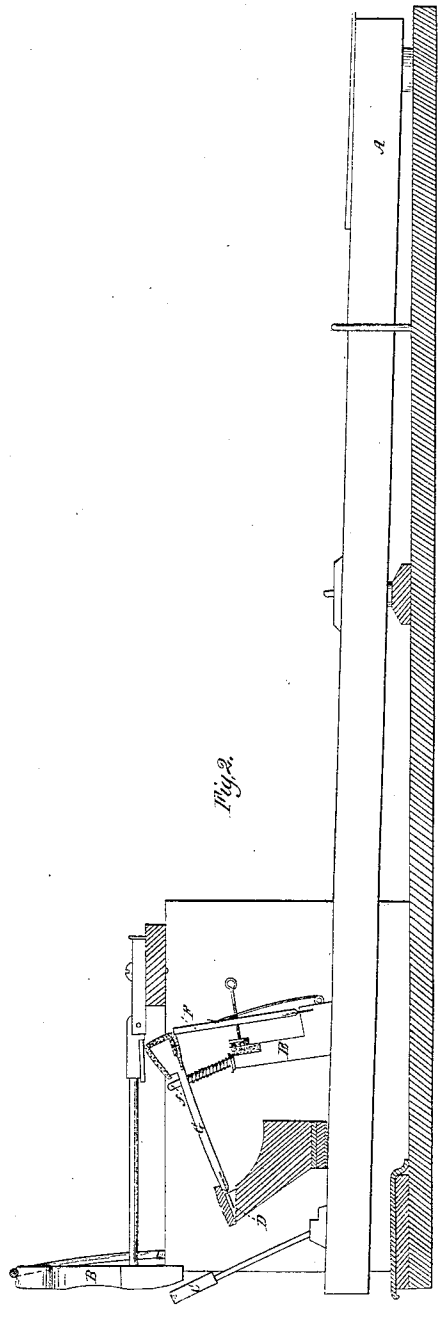

Fig. 2.

UNITED STATES PATENT OFFICE.

N. L. MURPHY, (BY JUDICIAL CHANGE OF NAME NOW N. M. LOWE,) OF BOSTON, MASSACHUSETTS.

PIANOFORTE-ACTION.

Specification of Letters Patent No. 14,509, dated March 25, 1856.

To all whom it may concern:

Be it known that I, N. Low MURPHY, (by judicial change of name now NATHANIEL MURPHY LOWE,) of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Pianoforte-Actions, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1, is a view of my action at rest. Fig. 2, a view of the same with the hammer up.

In order that a piano key may rise readily after it is depressed, it is necessary that its inner end be heavier than its outer, this is partly effected by the weight of the jack and the parts immediately connected therewith which are attached to the inner end of the key, and partly by weighting with lead or otherwise. It is very essential however that the key be not thus weighted beyond what is absolutely necessary, otherwise the touch will be hard or heavy. One of the worst faults of pianoforte actions is produced by the sudden relieving of the "fly" from the under hammer the instant after the key is struck. As this takes place, the weight of the hammer is for an instant taken off the key, which produces a disagreeable touch that is rendered still more harsh by the return of the hammer; the blow of which upon the check, again throws the weight of the hammer upon the key with a jar, that is very perceptible to the performer. To prevent this sudden relieving of the fly, and also the sharp blow of the hammer upon the "check," and thus to secure smoothness of touch, a spring has been introduced between the hammer and the top of the jack, for the purpose of easing down the hammer, and diminishing the force of its blow upon the check. In all such cases the end of the spring has been caused to drag, either upon the jack, or upon the hammer, producing a friction which diminishes the elasticity of the action, and also retards the fall of the hammer, and the inner end of the key, by which the capability of the latter to repeat is diminished. A further objection to this method of arranging the spring, arises from the fact that the oxid of the brass soon glazes the surface of the leather or other substance upon which it rubs, and a "singing" noise is produced by the sliding of the spring thereon. To remedy this inconvenience and to produce an action that shall repeat perfectly, and with a great smoothness of touch, is the object of my present invention, which consists in the peculiar manner in which I have applied a spiral spring between the under hammer and the jack, whereby I have succeeded in remedying all the before mentioned difficulties, and in producing a smoothness and elasticity of touch not before attained, combined with a promptness to repeat.

To enable others skilled in the art to understand my invention, I will proceed to describe the manner in which I have carried it out, referring generally to those parts which do not form the subject of my present invention, and describing more particularly those to which my improvements are attached.

In the accompanying drawings, A, is the key; B, the hammer; C, the check; D, the back rail; E, the jack; F, the fly; G, the under hammer.

My present improvements will now be described.

g, is a spiral spring which rests upon the "back" of the jack, and upon the under surface of the under hammer; this spring is carried and steadied by a guide rod *f*, the lower end of which is pivoted in the back of the jack, the upper end passing through a hole in the under hammer, this hole is bushed with leather or cloth to prevent noise, and for the same purpose the guide rod *f*, is prepared by dipping in size and covered with flock the wire is thus prevented from singing upon its guide rod. It will be perceived that there can be no friction produced by the spring when thus arranged, either at the moment when the hammer starts, or when it commences to fall, while neither the relieving of the fly, nor the blow of the hammer upon the check can be felt by the performer, the hammer being eased down so as greatly to increase the smoothness of touch.

By an inspection of Fig. 2, it will be seen that when the hammer commences to fall, a

considerable portion of its weight is thrown upon the key by means of the spring *g*, thus assisting the key to rise and enabling it to repeat with promptness and elasticity.

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

The peculiar manner in which I have arranged the spiral spring *g*, upon the rod *f*, as applied between the hammer and the key for the purposes herein set forth.

N. LOW MURPHY.

Witnesses:
P. E. TESCHEMACHER,
THOS. R. ROACH.