(No Model.)

A. NICKEL.

PIANO ACTION.

No. 585,829. Patented July 6, 1897.

FIG. 1.

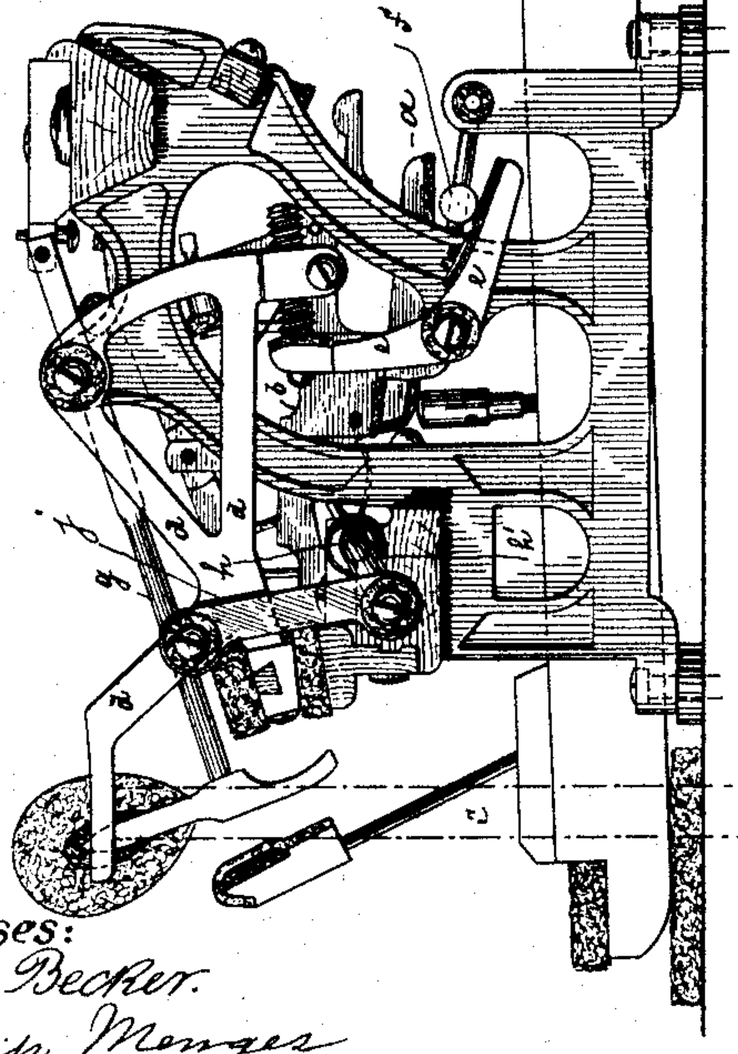


FIG. 2.

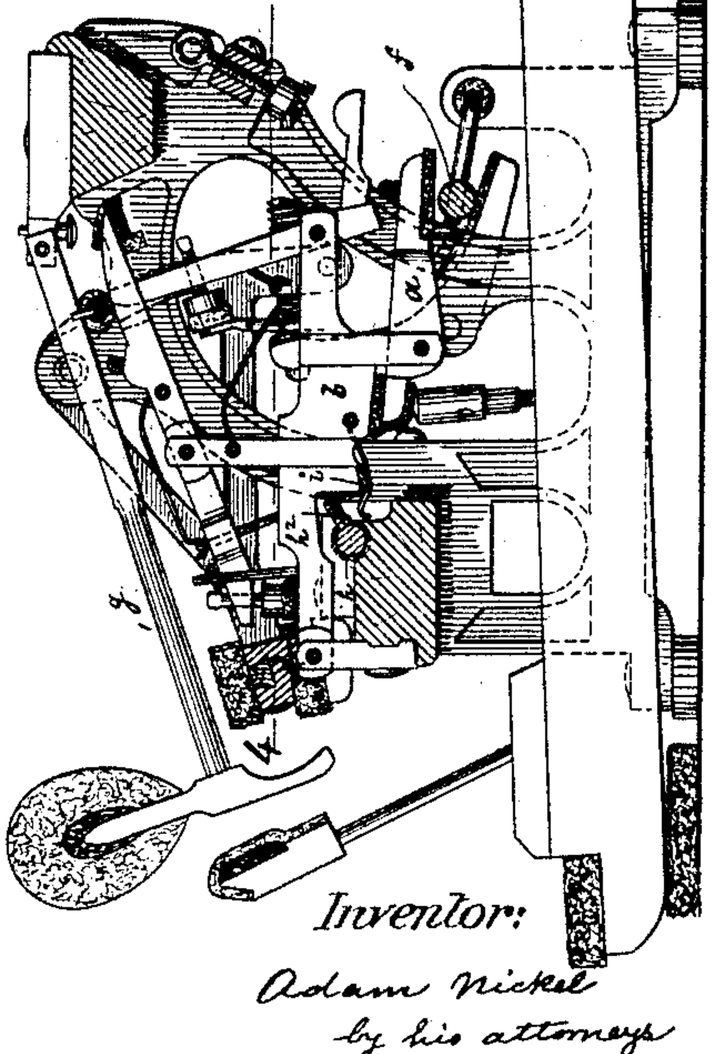


FIG. 3.

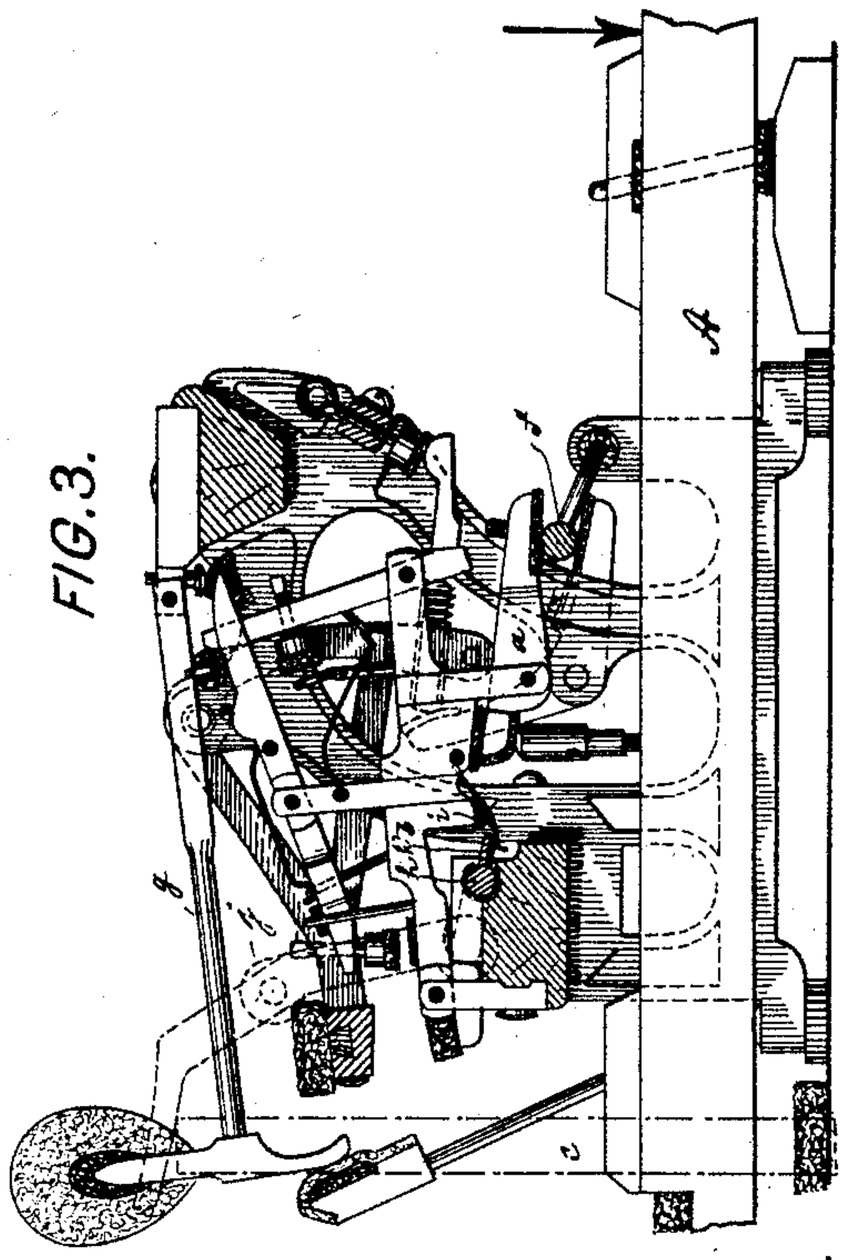
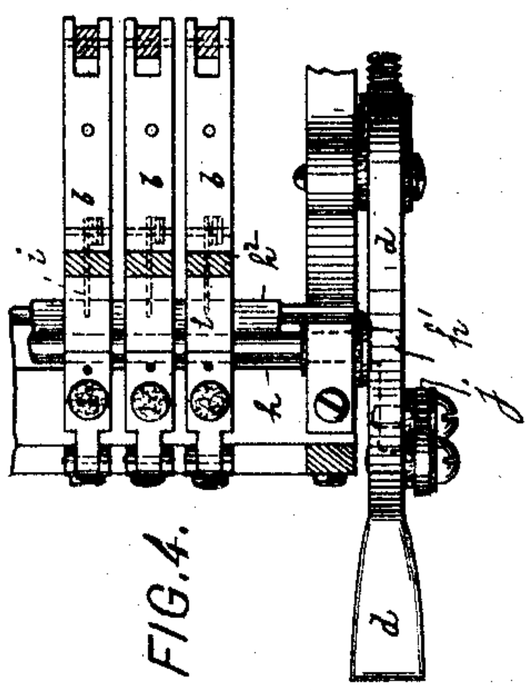


FIG. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

ADAM NICKEL, OF NEW YORK, N. Y.

PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 585,829, dated July 6, 1897.

Application filed April 5, 1897. Serial No. 630,707. (No model.)

To all whom it may concern:

Be it known that I, ADAM NICKEL, of New York city, New York, have invented an Improved Piano-Action, of which the following is a specification.

This invention relates to an improvement in that class of piano-actions in which the reach of the action is increased when the soft pedal is depressed, so as to prevent any dead motion between key and hammer, while at the same time the full stroke of the key is maintained.

When the hammer is in its half-stroke position, the leverage of actions of this class is insufficient to properly return the key to its normal position. In order to insure this prompt return, I have devised a spring attachment which will come into play automatically by the depression of the soft pedal and will assist the action to properly return the key as long as such soft pedal remains depressed. In this way the touch of the action remains practically uniform whether the soft pedal is used or not.

In the accompanying drawings, Figure 1 is a side elevation of the end of the action, showing more particularly the mechanism for raising the hammers into their half-stroke position upon a depression of the soft pedal. Fig. 2 is a side elevation of the action proper, showing the position of the parts when the soft pedal is raised. Fig. 3 is a similar view showing the position of the parts when the soft pedal is depressed. Fig. 4 is a cross-section through the rear part of the action on line 4 4, Fig. 2.

Upon the depression of the soft pedal the hammer is raised into its half-stroke position, and consequently the reach of the action must be increased if loose motion between the key and the hammer is to be avoided. Means for increasing such reach are illustrated in Patent No. 566,928, granted to me September 1, 1896. They may consist in effect of a small lever *a*, which is pivotally connected to the wippen *b* and is tilted with its front end upward upon a depression of the soft pedal, so as to raise the action, without, however, opening up any spaces in which dead motion may take place. The lever *a* is actuated by the lifter *c* of the soft pedal through levers *d e* and rod *f*, all as more fully described in the patent referred to.

It is clear that when the hammer *g* is raised, together with the action, in the manner described, into its half-stroke position the leverage of the action, upon falling away from the string, is reduced, and consequently the impetus imparted to the key is insufficient to properly return it to its normal position. The touch of the action will therefore suffer unless additional means are provided which will come into play only upon a depression of the soft pedal and which will then assist the action to properly return the key at its end A′ to its normal elevation. I have devised such means and will now proceed to more fully describe the same.

Across the rear of the action there extends a rock-shaft *h*, journaled in suitable bearings in which it is adapted to be rocked by the motion of the soft pedal. This result may be attained by connecting a crank-arm *h′* of rock-shaft *h* to the lever *d* by means of a link *j*. The lever *d*, being actuated by lifter *c*, will thus rock the shaft *h* forward when the lifter is raised and backward when the lifter is lowered. The rock-shaft *h* is provided with a forwardly-extending flange, finger, or feather h^2, which is normally tilted upward and is then entirely out of action, Fig. 2. When, however, the lifter is raised for pianissimo playing, the flange h^2 will be swung downward to engage a spring *i*, extending rearwardly from wippen *b*, Fig. 3, and across the path of the flange. At the same time that the flange h^2 is thus lowered the action itself is raised, and its reach is increased by the tilting of lever *a*. Thus the flange h^2 will at once put the spring *i* under tension, and the spring will consequently have the tendency to force the wippen downward and the key A with its free end A′ upward.

While the action is in its half-stroke position, this increased tension will thus be constantly exercised to assist the action as it falls away from the string to return the key to its normal position. As soon as the soft pedal is released and the parts resume their normal position, Fig. 2, this additional tension at once ceases, because the flange h^2 will release the spring *i*. Thus I obtain the impor-

tant advantage that the hammer stroke and touch remain substantially uniform whether the soft pedal is used or not, and therefore the rendering of pianissimo passages is greatly improved.

What I claim is—

1. A piano-action provided with means for changing the leverage and reach of the action, and means for simultaneously exerting a downward tension on the action upon the depression of the soft pedal, so as to maintain a uniform stroke of the key, substantially as specified.

2. A piano-action provided with a rock-shaft adapted to be actuated by the soft pedal and with a spring adapted to be engaged by the rock-shaft, and to increase the tension of the action upon a depression of the soft pedal, substantially as specified.

3. A piano-action provided with a wippen, a spring extending rearwardly therefrom, a flanged rock-shaft, means for increasing the reach of the action, and means for simultaneously rocking the rock-shaft to engage or disengage the spring, substantially as specified.

ADAM NICKEL.

Witnesses:
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