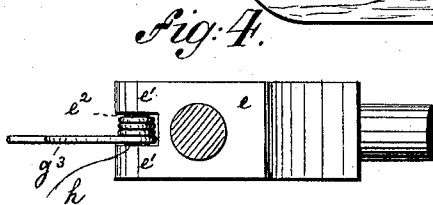
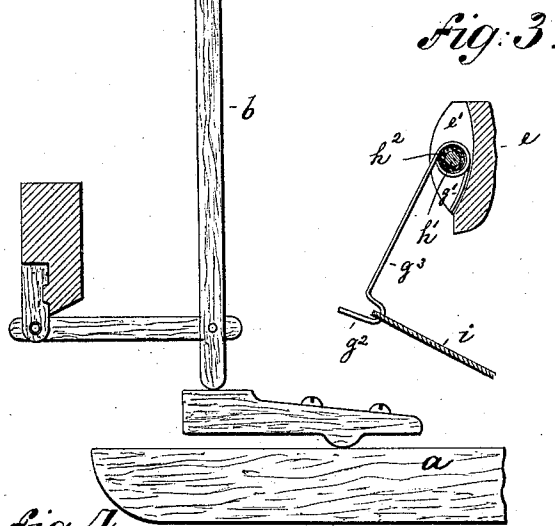
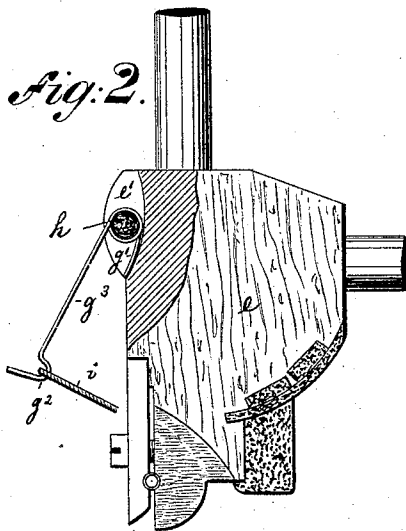
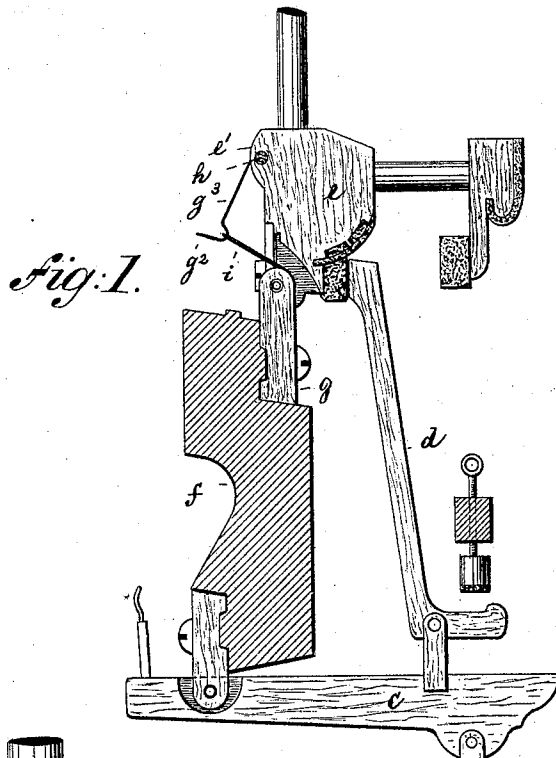


(No Model.)

F. ENGELHARDT.
PIANO ACTION.

No. 486,096.

Patented Nov. 15, 1892.



WITNESSES :

A. Schehl.
Wm. Schulz.

INVENTOR:

BY *F. Engelhardt*
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ATTORNEYS

UNITED STATES PATENT OFFICE.

FREDERICK ENGELHARDT, OF ST. JOHNSVILLE, NEW YORK.

PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 486,096, dated November 15, 1892.

Application filed June 2, 1892. Serial No. 435,246. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK ENGELHARDT, of St. Johnsville, Montgomery county, New York, have invented an Improved Piano-Action, of which the following is a specification.

This invention relates to an improved piano-action, and more particularly to the construction and attachment of the butt-spring.

It consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of a piano-action provided with my improvement. Fig. 2 is an enlarged side view, partly in section, of the butt; Fig. 3, a section through part of the butt, showing a modification; and Fig. 4, a top view of the butt.

The letter *a* represents the key of an upright-piano action. *b* is the abstract; *c*, the whip; *d*, the fly or jack, and *e* the hammer-butt, pivotally secured to the action-rail *f* by flange *g*, all as usual. The butt *e* is provided on its rear edge with a pair of cheeks *e'*, between which there is formed a groove *e''*. The cheeks are perforated for the admission of a string *h*, that bridges the slot and constitutes a pivot. I use a string made from textile material, Fig. 2, or I may use a metal pin *h'* with a textile bushing *h''*, Fig. 3. In both forms it will be seen that the pin has a noiseless outer contact-surface.

*g*³ represents the butt-spring, coiled near

one end around the pin *h* and prevented from turning by a forward extension *g'*, that bears against the butt edge. At its rear end the spring *g*³ terminates in a hook *g*², that engages the looped cord *i*, the ends of which are attached to the flange *g*.

Heretofore butt-springs when used were directly inserted with their forward end into a perforation of the hammer-butt, and no cloth or other pivot was used. This caused the spring to be apt to break, work loose, and become untrue. The advantages attached to my construction are that the spring is noiseless, that it is not apt to break or turn loose, and that it will always retain its position and exercise its full force.

What I claim is—

1. The combination of a slotted hammer-butt with a string-pivot and a butt-spring coiled around said pivot, substantially as specified.

2. The combination of a slotted hammer-butt having cheeks *e'* with a string-pivot passing through the cheeks and with a butt-spring coiled around the pivot and having rearward extension *g'*, substantially as specified.

Signed at St. Johnsville, in the county of Montgomery and State of New York, this 23d day of May, A. D. 1892.

FREDERICK ENGELHARDT.

Witnesses:

F. V. BRIESEN,
A. JONGHMANS.