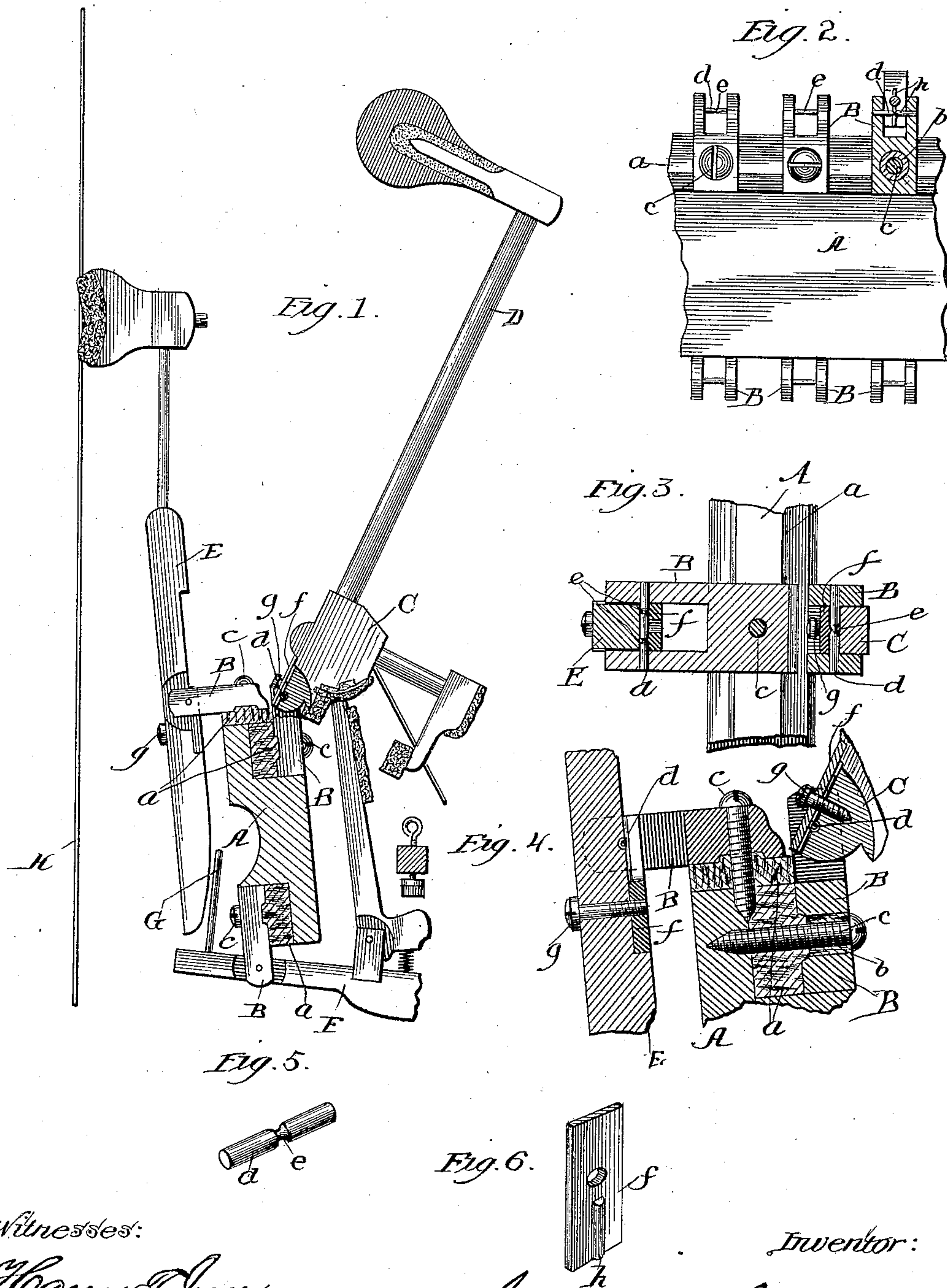


(No Model.)

C. H. CLEMONS.
PIANO ACTION.

No. 441,283.

Patented Nov. 25, 1890.



Witnesses:

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PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 441,283, dated November 25, 1890.

Application filed September 6, 1890. Serial No. 364,197. (No model.)

To all whom it may concern:

Be it known that I, CORYDON H. CLEMONS, residing in Chicago, county of Cook, and State of Illinois, and a citizen of the United States, have invented certain new and useful Improvements in Piano-Actions, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a general view of a portion of a piano-action, showing my improvements applied thereto. Fig. 2 is a detail showing the flange-rail and flanges. Fig. 3 is a detail, being a section through a flange, hereinafter described. Fig. 4 is an enlarged detail, being a section through a portion of the flange-rail and two flanges. Fig. 5 is a detail, being a perspective view of one form of pivot-pin; and Fig. 6 is a detail, being a perspective view of the clamp for the pivot-pin.

Heretofore great difficulty and trouble have been experienced from the shrinkage of the flanges and flange-rails of pianos, both upright and square, caused by the artificially-heated and dry air of the rooms in which pianos are kept. The drying and shrinkage of the flange-rails causes the flanges to become loose, thereby producing a click with each stroke of the hammer against the string, and in some cases from the continued exposure the shrinkage becomes sufficiently great to so loosen the parts as to allow them to get out of adjustment, and thereby become practically useless.

One object of my invention is to overcome this difficulty, which I accomplish by securing an end-grain piece of wood on the flange-rail and by placing an end-grain bushing in the flange around the attaching-screw.

Another difficulty heretofore experienced arises from the loosening and slipping longitudinally of the center or pivot pins in the hammer-butt or other piece when they should be rigidly held.

The second object of my invention is to avoid this difficulty, which I accomplish by means of a pivot-pin provided with a groove and a clasp provided with a tongue adapted to engage with the groove.

That which I claim as new will be pointed out in the claims.

In the drawings, A indicates the flange-rail, which is supported in the piano in the usual manner, and is made in the usual form.

B indicates a flange. It will be understood that any number of flanges may be used, and any of the common forms of flanges may be employed.

C indicates the hammer-butt.

D indicates the hammer.

E indicates the damper-lever.

F indicates the jack-lever.

G indicates the damper-spoon, and H indicates the piano-string.

The construction and arrangement of the above parts may be any of the common and well-known forms of construction, and may be either upright, grand, or square.

Upon the flange-rail A, I secure a strip or strips of wood *a* in position for the attachment of the various flanges B, which are to be secured to the flange-rail A. As shown in Fig. 1, there are three strips *a*; but one or more may be used. Each strip *a* is made of wood whose grain is on end—that is, the end of the grain of the wood comes in contact with the flanges B, as shown in Figs. 1 and 4. These strips are glued or cemented firmly to the flange-rail A. Each flange B is preferably provided with a bushing *b*, which bushing is preferably made of wood whose grain runs longitudinally with the bushing. Each flange B is secured to the flange-rail A by means of a screw *c*, which passes centrally through the bushing *b* and through a strip *a* and some distance into the rail proper A, as best shown in Fig. 4.

By placing a strip *a*, having its grain endwise, upon the flange-rail A and securing the flanges B to such end-grain strip *a* the flanges B will remain firmly in the position in which they are secured and will not be loosened by the exposure of the parts to the continued action of heated air.

The end-grain bushings *b* prevent the loosening of the flanges B by their shrinkage in drying, as the head of the screw *c* engages with the bushing and draws its ends against the end-grain piece *a*. This bushing is important in some of the flanges B, especially for the hammer, while in others, as the flanges for the damper, they are of less importance.

d indicates the pivot-pins, upon which the hammer-butts and the damper-levers E are pivoted. Each pin *d* is provided with one or more grooves *e*, as shown in Fig. 5.

f indicates the clamping-plate, which is secured upon the hammer-butt *C* or damper-lever *E* by means of a screw *g*. Each plate *f* is provided with one or more tongues *h*, corresponding with the grooves *e* in the pins *d*.

By means of the plate *f* and screw *g* each hammer-butt *C* or lever *E* is pivotally secured upon its pivot *d*. As above stated, great trouble has been heretofore experienced by the longitudinal slipping of the pivots *d*. By providing each pivot with a groove or grooves *e* and each clamp *f* with a tongue or tongues *h*, adapted to engage with the corresponding groove or grooves *e* in its pivot *d*, the pivot is prevented from longitudinal movement.

In attaching the hammer-butts *C* pivots *d* with one groove *e* are employed, while in attaching levers *E* the clamping-plate *f* must be bifurcated, and each bifurcation may be provided with a tongue *h*, as shown in Fig. 3, and the pivot *d* is accordingly provided with two corresponding grooves *e*. By the construction above described the difficulties above set forth are entirely obviated.

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

1. In a piano-action, the combination, with a flange and flange-rail, of an end-grain strip of wood interposed between said flange and flange-rail for preventing the loosening of the flange by shrinkage, substantially as specified.

2. In a piano-action, the combination, with a flange-rail and an end-grain strip of wood secured thereon, of a flange having an end-grain bushing *b* and an attaching-screw passing through the bushing and end-grain strip, substantially as specified.

3. In a piano-action, the combination, with a flange and a pivot-pin having a groove *e*, of a swinging part and a clamping-plate *f*, having a tongue *h*, adapted to engage with the groove *e*, for preventing longitudinal movement of the pivot-pin, substantially as specified.

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