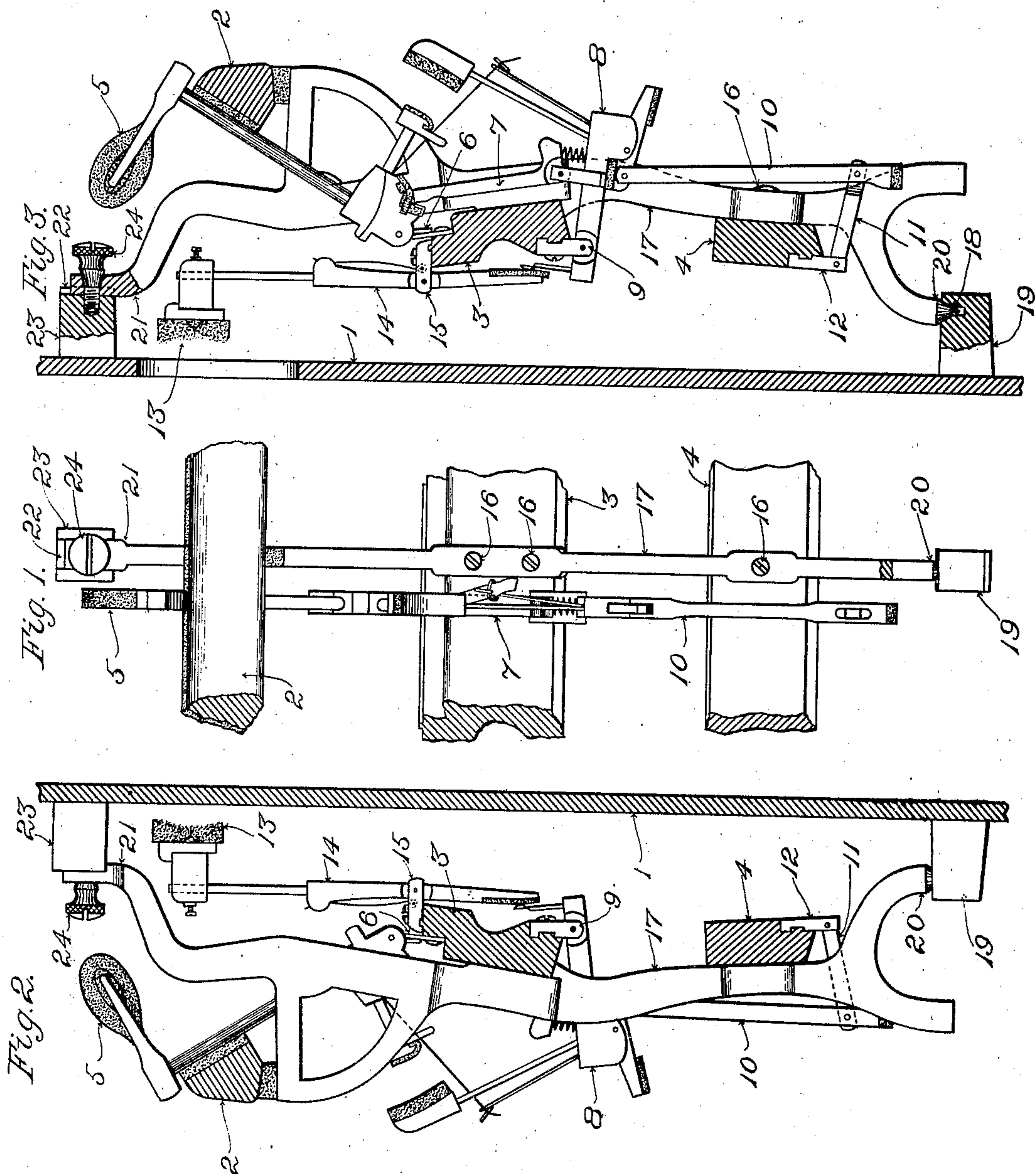


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E. SANDNER.
PIANO ACTION SUPPORTING MEANS.

APPLICATION FILED JAN. 13, 1908.



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UNITED STATES PATENT OFFICE.

EMIL SANDNER, OF CAMBRIDGE, MASSACHUSETTS.

PIANO-ACTION-SUPPORTING MEANS.

No. 896,066.

Specification of Letters Patent.

Patented Aug. 11, 1908.

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To all whom it may concern:

Be it known that I, EMIL SANDNER, a citizen of the United States, residing at Cambridge, in the county of Middlesex, State of Massachusetts, have invented a certain new and useful Improvement in Piano-Action-Supporting Means, of which the following is a specification, reference being had therein to the accompanying drawings.

The general object of the invention is to provide means for supporting the action of an upright piano securely in place.

Various causes tend to produce a change in the relative position of the action in pianos constructed as heretofore customary. When, for instance, the action is supported wholly or in part by the key-frame, any swelling, shrinking, or warping of the wood of the latter will alter the position of the entire action, or of the part which is thus supported. When the action is mounted upon bolts or screws projecting from the plate of the piano, transverse displacement or shift of the action is liable to result from improper positions of the stems of the said bolts or screws, especially after replacement following removal of the parts, as by a tuner, and one or more of the bolts or screws may loosen so as to allow shifting to take place.

The invention is embodied in an action-frame which is removably secured directly to fixed and preferably integral portions of the plate itself.

More particularly, the invention consists in the combination of the action-frame with the plate by means of a tapered fixed socket with which one of the said elements is provided and a tapered foot with which the other thereof is provided, said foot occupying the said socket so as to support the action-frame vertically and also hold the same from horizontal displacement, and said elements having supplemental interengaging portions and securing devices as hereinafter specified, all coöperating to secure the action-frame upon the plate at bottom and top.

An embodiment of the invention is illustrated in the drawings, in which latter,—

Figure 1 is a front elevation of portions of the plate and action of an upright piano, showing the said embodiment. Fig. 2 is a partly sectional view looking from the right-hand side in Fig. 1. Fig. 3 is a partly sectional view looking from the left-hand side in Fig. 1.

Having reference to the drawings,—At 1

is represented a portion of the plate, at 2 the movable hammer-rail or hammer-rest rail, at 3 the wippen-rail or action-rail as it sometimes also is called, and at 4 the bottom or abstract-rail. A hammer is shown at 5, pivoted to the hammer-flange 6, which is attached to the rail 3. At 7, Figs. 1 and 3, is the jack which co-acts with the said hammer, the said jack being mounted upon the wippen 8, and the latter in turn being pivoted to the flange 9 attached to rail 3. At 10 is the extension or abstract which coöperates with the said wippen 8, 11 being the extension-guide or abstract-guide, which is pivoted to flange 12 attached to bottom rail 4.

At 13 is a damper, 14 being the damper-lever, which is pivoted to flange 15 attached to rail 3.

As thus far named, the parts are or may be as usual or as preferred, and are referred to simply for the purpose of defining more clearly the relations of the invention.

Referring, more particularly, to the illustrated embodiment of the invention, the rails 3 and 4 are secured fixedly, as by screws 16, 16, 16, to brackets or stands 17, only one of which is shown in the drawings. In practice, a series of the said brackets or stands is employed, as for instance four, they being located at convenient and suitable points in the length of the rails. Each bracket is arranged in vertical position. The usual swinging arms (not shown) on which the hammer-rail 2 is mounted, are, in practice, connected pivotally to the said brackets or stands. The latter, with the rails 3 and 4, constitute the action-frame.

In carrying the invention into effect, each bracket or stand 17 is engaged at bottom and top directly with fixed or integral portions of the plate in manner providing for the firm and rigid connection of the action-frame with the plate and permitting the convenient removal of the action-frame and action whenever desired. In the present instance, the plate is formed with a vertical socket 18, Fig. 3, conveniently located in a lug 19 that projects from the plate, and the bracket or stand is formed with a downwardly-projecting foot 20 that enters and rests in the said socket, whereby the action-frame is supported vertically and its lower portion is confined from movement in any horizontal direction. To maintain a tight fit of the foot within the socket and thereby insure against looseness and play, the socket is formed so

that it tapers from its open top to near its bottom, and the portion of the foot which enters the socket is made conical. At its upper end the bracket or stand 17 is formed with an arm 21, and the plate is formed with an open socket 22 to receive such arm, the socket 22 being conveniently located in the end or outer face of a lug 23 that projects from the plate. The arm fits snugly between the side-walls of the socket so as to insure against side-play, and is secured therein by a screw 24, the stem of which passes through a hole in the arm, the threaded portion of such stem entering a threaded hole that is tapped in the lug 22.

In order to insure more effectually against play of the upper end of the bracket or stand in any direction, the hole through the arm 21 is made tapering and the body of the screw is made conical to fit the said hole, as shown in Fig. 3, so that as the screw is turned home the conical body takes firm bearing within the tapering hole.

When it is desired to remove the action-frame and action, it is necessary simply to withdraw the screws 24, whereupon the arms 21 may be swung forward out of the sockets 22, and the feet 20 may be lifted out of the sockets 18, thus disengaging the action-frame from the plate. In subsequently replacing the action, the insertion of the feet 20 into the sockets 18, and of the arms 21 into the sockets 22, and the insertion and tightening up of the screws 24, restores the action to its former position.

It will be perceived that the described construction safeguards against displacement of the action in any direction. The action will stay in place securely. The supporting means is not affected by climatic changes.

I claim as my invention:—

1. In an upright piano, the combination with the plate having a lower tapering fixed seat and an upper stationary socket with fixed side-walls, and the action-frame having a tapered foot which engages the said seat, and also having an upper arm which fits between the said fixed side-walls, whereby the action-frame is held in its upper portion from transverse displacement, of means engaging with the said arm and holding it between the said side-walls.

2. In an upright piano, the combination with the plate having a lower tapering fixed seat and an upper stationary socket with fixed side-walls, and the action-frame having a tapered foot which engages with the said fixed seat, and also having an upper arm which fits between the said fixed side-walls, whereby the action-frame is held in its upper portion from transverse displacement, a screw passing through said arm and having a tapered portion engaging with the latter to hold it in place between the said side-walls.

3. In an upright piano, the combination with the plate having the integral lugs, the lower of which is formed with a tapering fixed seat and the upper with fixed side-walls, and the action-frame having the foot tapered to engage the said seat, and also having an arm which fits between the said side-walls, of a screw passing through said arm and entering said upper lug to hold the arm in place between the said side-walls.

In testimony whereof I affix my signature in presence of two witnesses.

EMIL SANDNER.

Witnesses:

CHARLES F. RANDALL,
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