No. 696,025. Patented Mar. 25, 1902.

H. E. FINNEY.

DEVICE FOR VOICING PIANO HAMMERS.

(Application filed Mar. 5, 1901.)

(No Model.)

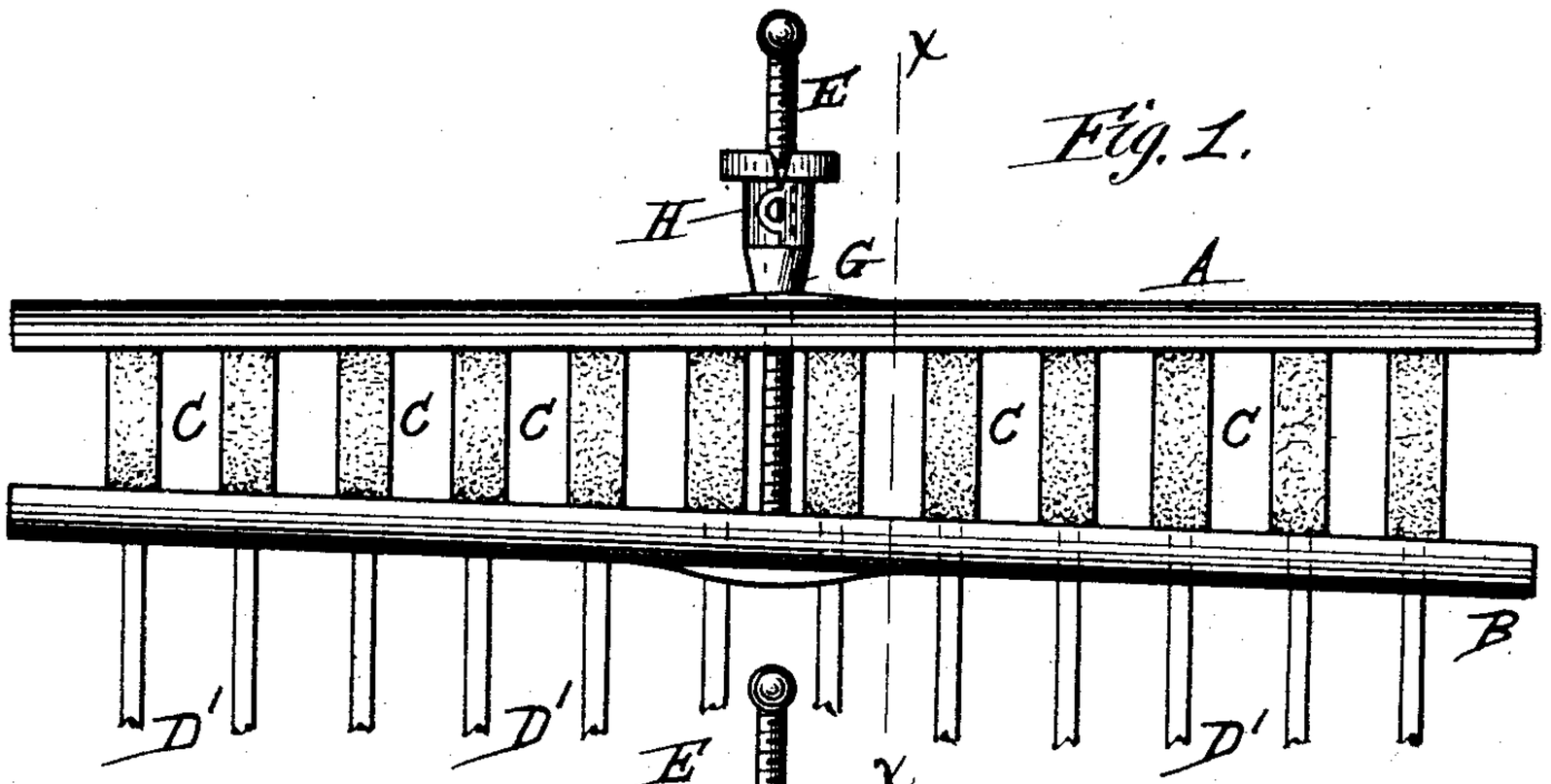

Fig. 1.

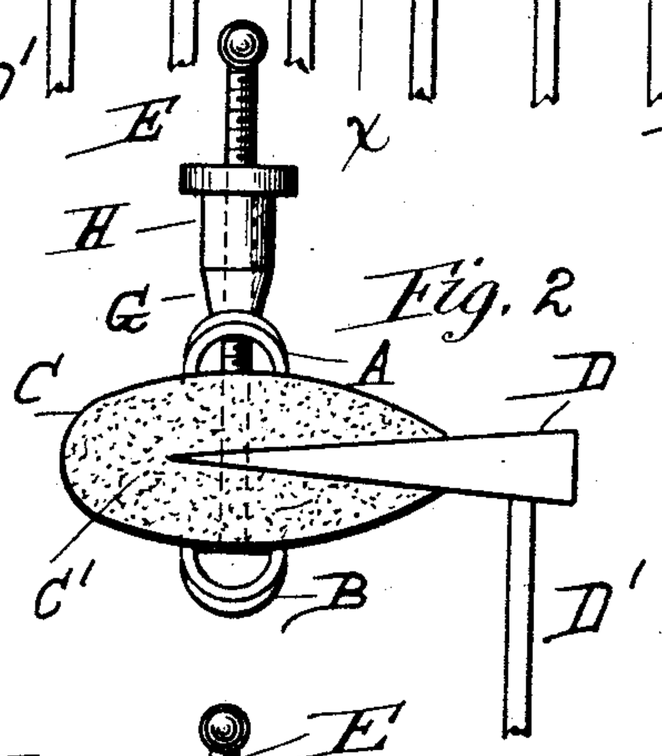

Fig. 2.

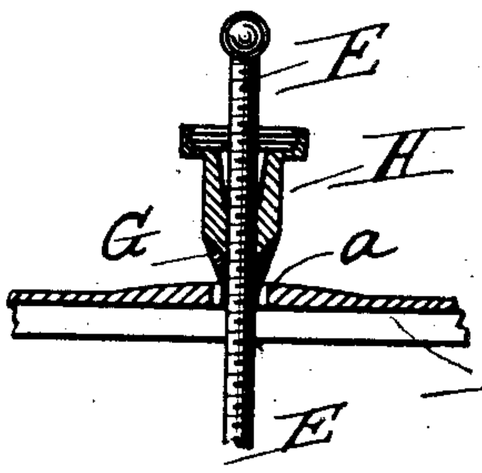

Fig. 4.

Fig. 5.

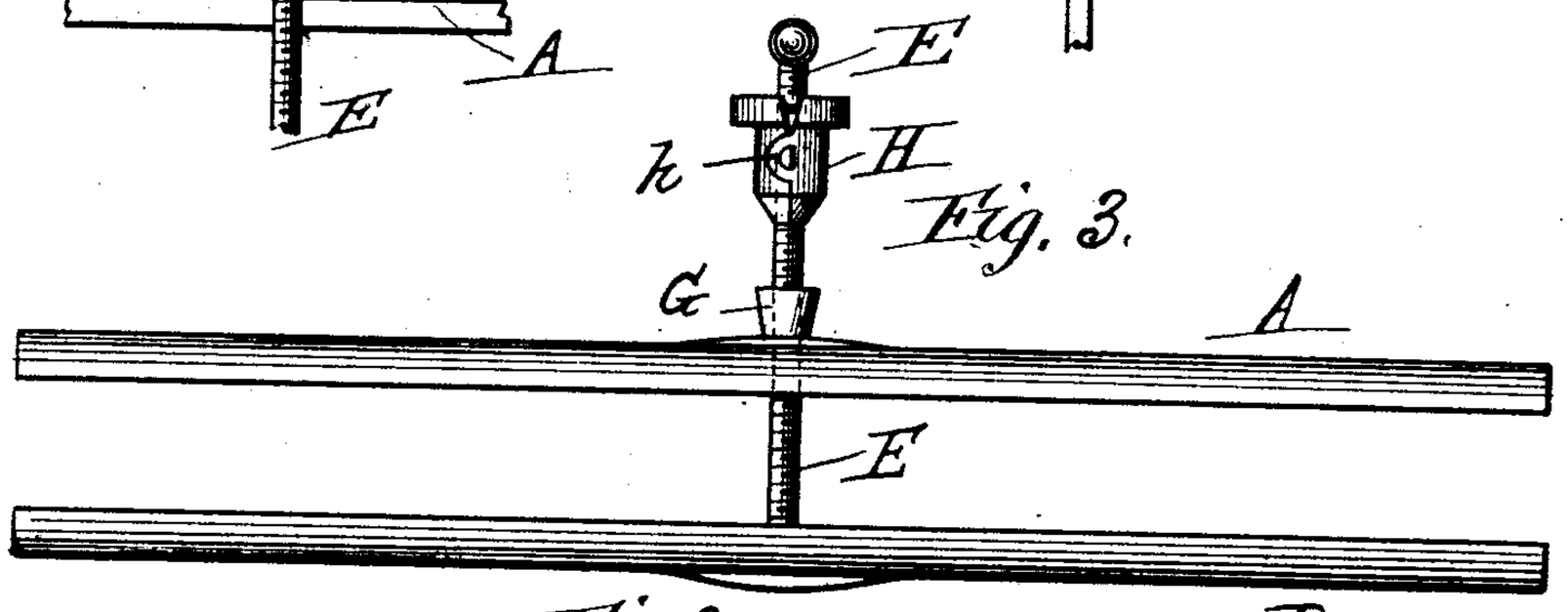

Fig. 3.

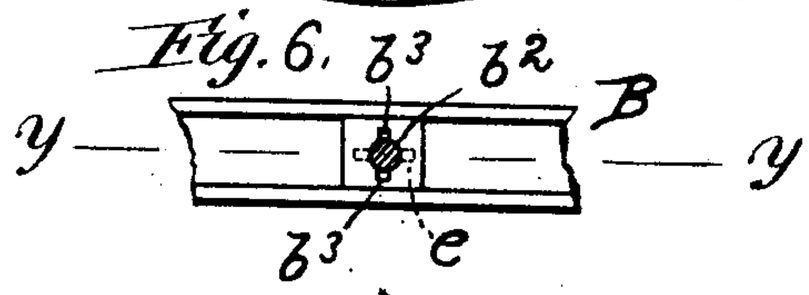

Fig. 6.

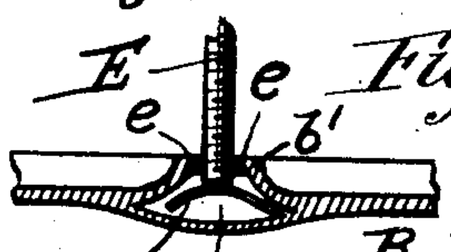

Fig. 7.

Witnesses:
A. F. Lunand
Ottilie C. Freiberg

Inventor:
Henry E. Finney.
by Chas. L. Page Atty.

UNITED STATES PATENT OFFICE.

HENRY E. FINNEY, OF CHICAGO, ILLINOIS.

DEVICE FOR VOICING PIANO-HAMMERS.

SPECIFICATION forming part of Letters Patent No. 696,025, dated March 25, 1902.

Application filed March 5, 1901. Serial No. 49,897. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. FINNEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Devices for Voicing Piano-Hammers, of which the following is a specification.

The operation of "voicing" piano-hammers as generally practiced prior to my invention has consisted in inserting a needle into the hammer-pad while the hammer is manually held by the tuner. The frequent extreme compactness of the hammer-pad necessitates the exertion of a considerable degree of force on the part of the operator or tuner, and this in turn requires that the hammer shall be held immovable at the expense of considerable effort, and while thus endeavoring to hold the hammer the hammer-bar, which is usually made of wood, such as cedar, sometimes breaks, it being the experience of all tuners, so far as I have been able to ascertain, that in the course of their work quite a number of such hammer-bars have been thus broken by them.

Objects of my invention are to overcome the foregoing-mentioned objectionable feature, to utilize the combined strength of a set of hammer-bars in resisting the strain imposed upon the hammer-bar of a hammer which is being voiced, to facilitate the work of voicing piano-hammers, and to provide simple and reliable means for attaining these and other useful ends.

In carrying out my invention I provide a clamp device comprising a pair of clamp-bars adapted to engage the hammers and clamp between them a series of such hammers, the hammer-engaging clamp-bars being adjustably connected, whereby they can be relatively adjusted and also arranged to have suitable independent play or movement, so that the two bars may adjust themselves to the form and progressively varying sizes of the hammers, further matters of improvement being involved in certain details hereinafter described. By thus rigidly clamping a series of hammers by a device common to all in such series all of the hammer rods or bars contribute to support and practically reinforce the hammer-bar of such one of the hammers as may be operated upon, as in voicing. The operation is also rendered less fatiguing to the tuner, the hammer is held steadier, whereby it can be more readily voiced, and the work generally facilitated.

In the accompanying drawings, Figure 1 represents in front elevation a series of piano-hammers held in accordance with my invention, the lower portions of the hammer-bars being broken away for convenience of illustration. Fig. 2 is a section in line *x x* in Fig. 1. Fig. 3 shows the clamping device in elevation. Fig. 4 is a detail view showing a portion of the clamping device in section. Fig. 5 is a detail view showing the threaded rod in cross-section and the split nut in end view. Fig. 6 is a plan view of a portion of the lower clamp-bar, the threaded rod being shown in cross-section. Fig. 7 is a section on line *y y*, Fig. 6.

A denotes the upper clamp-bar, and B the lower clamp-bar, which said bars are in Figs. 1 and 2 shown applied to a number of piano-hammers C, so as to hold them rigidly in series. The piano-hammers shown are constructed as usual—that is to say, each key is formed by a pad C′, Fig. 2, fitted to the head D of a vibrating hammer-bar D′. When the pads or hammers become compacted by use, it is necessary to voice them, and this is effected by inserting a suitable needle through the pad, so as to thereby loosen up the material of which it is composed.

The clamp-bars A B are each concave in cross-section and arranged with their concave faces relatively opposite, as in Fig. 2, by which formation and arrangement the clamp-bars are provided with gripping edges, which readily and accuratety engage the curved surfaces of the hammers. The clamp-bars are connected by a threaded rod E, arranged midway of their ends and serving to provide an articulated connection, which permits the bars to adjust themselves with reference to the form and successively varying sizes of a set of hammers, as in Fig. 1, and also serving to provide a rigid connection between the clamp-bars when the adjustable tightening-up means, hereinafter described, is adjusted for such purpose.

In order to detachably connect the lower clamp-bar with the rod E, said bar is pro-

vided with a recess *b*, Fig. 7, and a spring F, arranged within the same. The concave side of the clamp-bar B is somewhat raised over said recess, as at *b'*, and through this raised portion is formed an opening b^2, Fig. 6, having lateral enlargements b^3, the central opening b^2 in such case being adapted for the entrance and exit of the stem E, and the lateral enlargements b^3 of such opening being adapted to in like manner permit the passage of lateral lugs *e* on the stem. By such arrangement the stem can be inserted through said opening and pressed against the spring E to an extent to permit the lugs on the stem to pass through the lateral enlargements b^3 of the opening, after which the stem can be turned, so as to place its lugs out of register with the lateral enlargements b^3 and having such lugs in engagement with the top wall of the recess *b*, as indicated in dotted lines in Fig. 6 and full lines in Fig. 7. The spring F, which is secured to the clamp-bar B, presses up against the stem E and serves to maintain the clamp-bar in position relatively to the stem, to maintain the interlocking condition of such members, as shown in Fig. 7, and at the same time permit the bar to adjust itself to the hammers, as in Fig. 1. In order to release the clamp-bar B from the stem, it will only be necessary to slightly depress the stem and give it a quarter-turn, so as to bring its lugs in register with lateral enlargements b^3 of the opening, after which the stem can be withdrawn from the clamp-bar or the latter removed from the stem.

The foregoing-described interlocking connection between the stem and the clamp-bar B practically provides the clamp-bar with a keyhole and adapts the end of the stem to form a key, which can be inserted through the keyhole and then given a slight turn, so as to cause it to interlock with the clamp-bar. The spring is also so arranged that when the end of the stem is inserted through the keyhole it engages and flexes the spring, which acts against the spring with a yielding spring resistance, tending to maintain the clamp-bar in position and at the same time yielding to allow the clamp-bar to adjust itself to the piano-hammers.

The stem E also passes through an opening *a*, Fig. 4, in the upper clamp-bar A, which said opening is large enough to permit the clamp-bar to adjust itself to the hammers. Said stem is provided above the clamp-bar A with an externally tapered or conical sleeve G and a longitudinally-divided nut H. The sleeve G has a tapered seat in its upper portion, and the lower end of the nut is tapered, so as to wedge within such opening, so that when the sleeve G is lowered upon clamp-bar A, as in Fig. 4, and the divided nut brought down, so as to cause its lower end to wedge within the sleeve, the two portions of the nut will clamp and engage the threaded stem, and thereby permit rotation of the nut to move the bar A downwardly on the stem to and extend to clamp it against the top portions of the hammer and also draw up the stem with the lower clamp-bar, so as to clamp the latter against the lower side of the hammers. The two parts of the nut referred to can be connected together by a yielding connection in any suitable way—as, for example, one part of the nut may have a slotted lug *h* and the other part have a projection arranged to engage in the slotted lug.

When a series of hammers are clamped, as in Fig. 1, the clamp-bars, which are self-adjusting with reference to the different sizes of hammers, converge, as illustrated, and are firmly clamped upon the hammers by means of the adjusting connection between them, it being seen that the threaded stem in such case passes between two of the hammers at the middle of the series clamped by the bars. When the hammers are thus rigidly tied together in series, the work of voicing such hammers will be rendered a comparatively easy matter and the voicing operation can be effectively and expeditiously performed.

The clamp-bars, particularly the upper clamp-bar, also provide a gage or guide for the needle, and owing to the fact that such bars are self-adjusting and also adapted by reason of their gripping edges to be set forward or rearwardly, as may be desired, such gage or guide can be positioned with reference to the point where it is desired to force a needle in the hammer-pad.

What I claim as my invention is—

1. A device for use in voicing piano-hammers, comprising a pair of clamp-bars respectively adapted for engaging the upper and the lower sides of a series of piano-hammers, and an adjustable connection between the clamp-bars adapted to cause them to rigidly tie together the hammers in series; said clamp-bars being also relatively self-adjustable in directions to permit them when applied to a series of keys to assume positions in planes converging from one to the other end of the clamp with reference to the diminishing sizes of the hammers.

2. A device for use in voicing piano-hammers comprising a pair of oppositely-arranged clamp-bars adapted to respectively engage the upper and lower sides of a series of such hammers; a threaded stem connected with one clamp-bar; and a nut adjustably arranged on the end portion of the threaded stem which projects from one of said clamp-bars; the clamp-bars being adjustable independently of the stem with reference to the varying sizes of hammers in a series tied together by said clamp-bars.

3. A device for use in voicing piano-hammers, comprising a pair of clamp-bars adapted to respectively engage the upper and lower sides of a series of hammers; and connecting means adapted for clamping said clamp-bars upon the hammers and involving a stem which detachably interlocks with one clamp-bar and extends through an opening in the

other clamp-bar, and a clamping-nut upon the threaded end portion of the stem which projects from said last-mentioned clamp-bar.

4. A device for use in voicing piano-hammers, comprising a pair of clamp-bars adapted to respectively engage the upper and lower sides of a series of hammers; a stem connected with the middle portion of one clamp-bar and passing through an opening in the middle portion of the other clamp-bar and having its threaded end portion projecting outwardly therefrom; and a clamp-nut arranged for adjustment upon such projecting end portion of the stem; the clamp-bars being self-adjusting independently of the stem and with reference to the form and size of the hammers.

5. A device for use in voicing piano-hammers, comprising a pair of clamp-bars respectively adapted for engaging the upper and lower sides of a series of hammers; a stem connected with one clamp-bar and passing through an opening in the other clamp-bar having its threaded end portion projecting therefrom; a sleeve arranged upon the projecting end portion of the stem and having a tapered seat or recess; and a divided nut also arranged upon such projecting end portion of the stem and having a tapered end portion arranged to engage and wedge within the tapered seat or recess in the sleeve, for the purpose set forth.

6. A device for voicing piano-hammers comprising a pair of clamp-bars respectively adapted to engage the upper and lower side of a series of such hammers; a threaded stem connected with one clamp-bar and extending through and projecting outwardly from an opening in the other clamp-bar; a tapered socket through which the projecting portion of the stem passes; and a longitudinally-divided nut arranged upon such projecting portion of the stem and having a tapered end portion arranged to enter and wedge within said tapered socket, for the purpose set forth.

7. A device for voicing piano-hammers, comprising a pair of clamp-bars respectively adapted to engage the upper and lower sides of a series of such hammers; a stem interlocked with one clamp-bar and passing through an opening in the other clamp-bar; and means for adjusting the last-mentioned clamp-bar along the stem; the clamp-bar with which the stem interlocks being provided with a keyhole for the admission of the end of the stem which is adapted to form a key whereby after entrance through such keyhole, a turn on the part of the stem will cause it to interlock with the clamp-bar; and a spring which is engaged and flexed by the stem when the latter enters said keyhole for the purpose set forth.

HENRY E. FINNEY.

Witnesses:
CHARLES G. PAGE,
OTTILIE C. FRIEBERG.