Jan. 29, 1929. 1,700,391

J. H. WILLIAMS ET AL

SOUNDING BOARD PRESS

Original Filed June 2, 1925 2 Sheets-Sheet 1

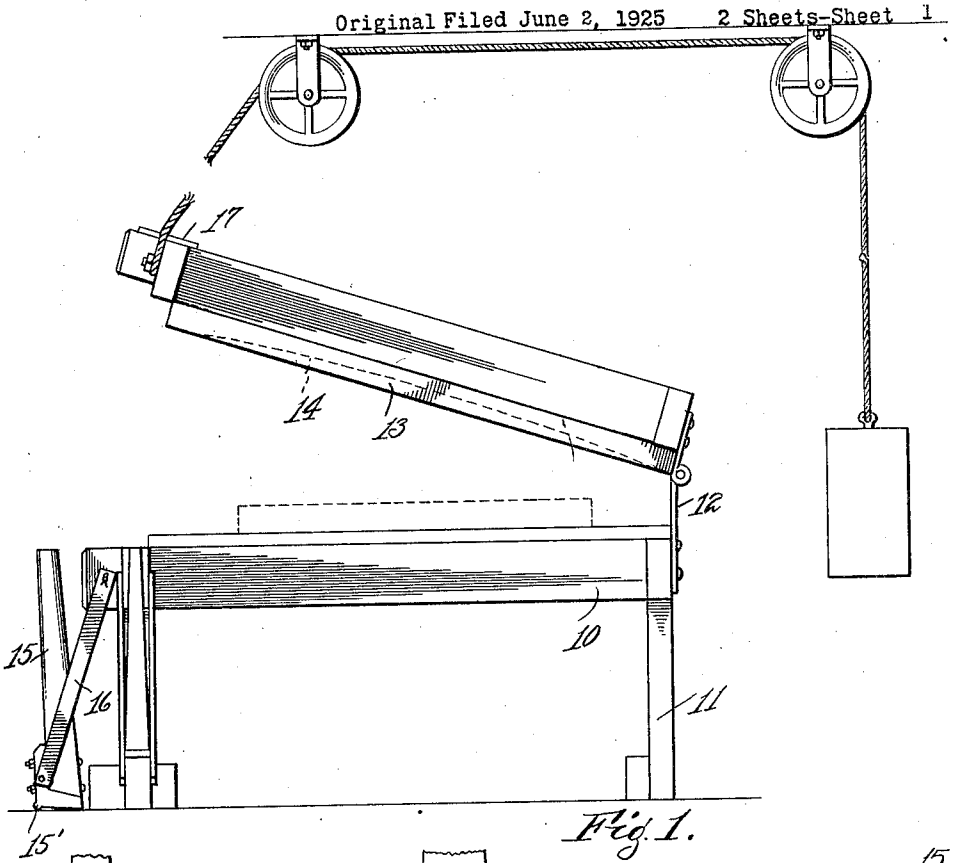


Fig. 1.

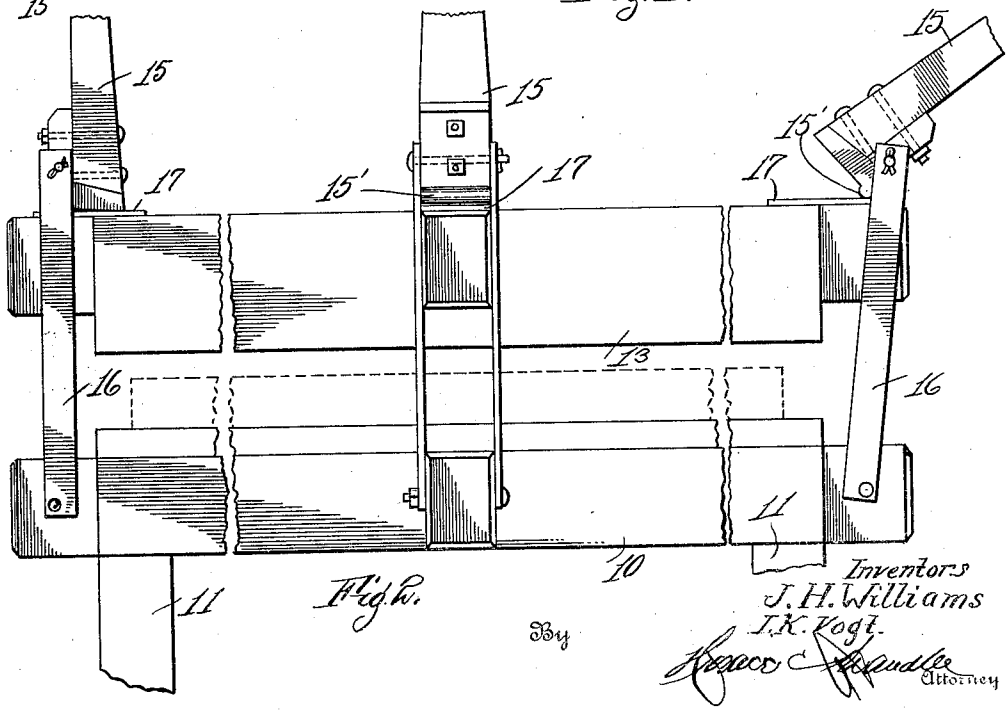


Fig. 2.

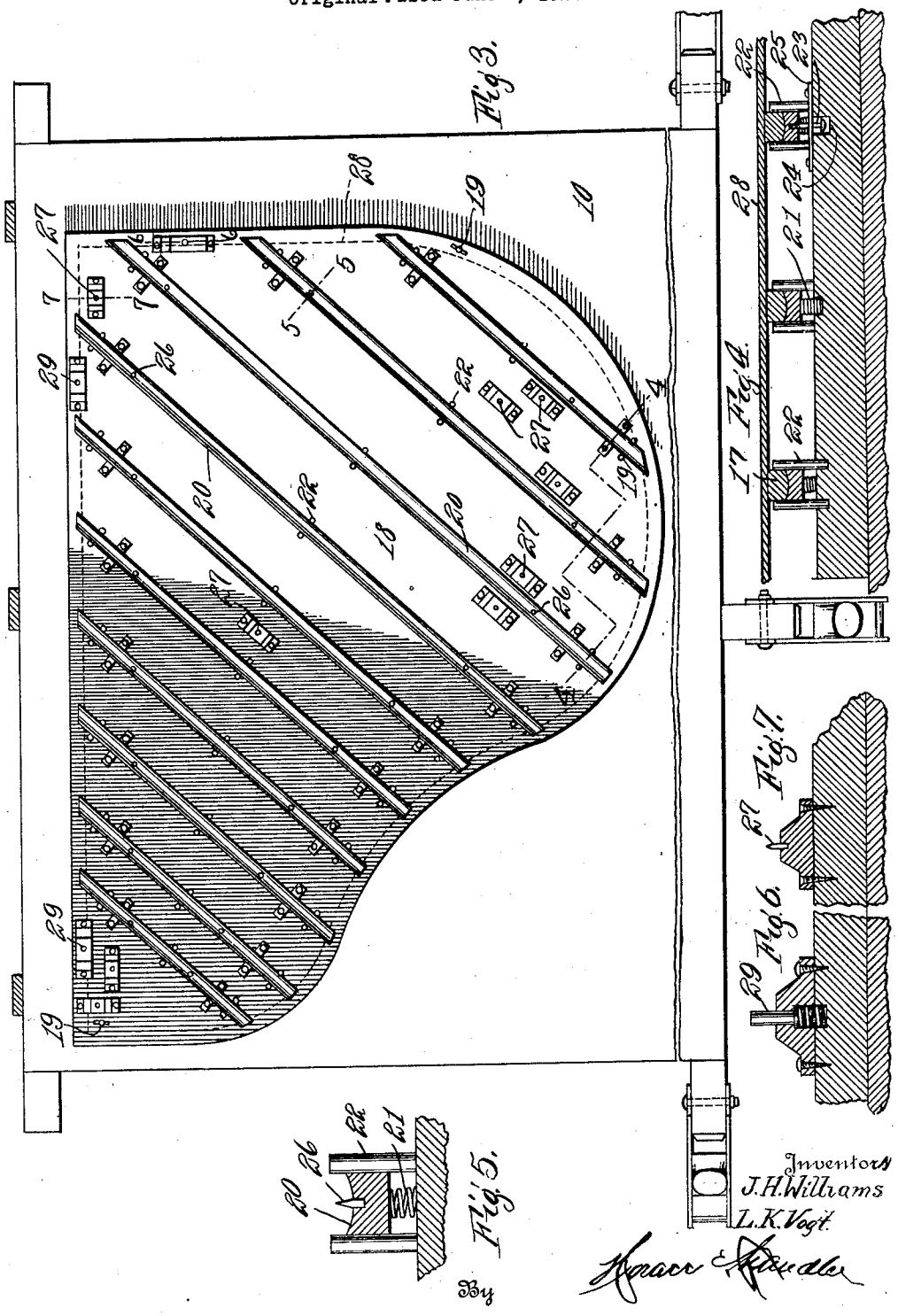
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UNITED STATES PATENT OFFICE.

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SOUNDING-BOARD PRESS.

Application filed June 2, 1925, Serial No. 34,502. Renewed June 20, 1928.

This invention relates to devices used in the manufacture of pianos and has particular reference to the manufacture of sounding boards for grand pianos.

As is well known these sounding boards are arched or crowned and are provided with a number of ribs which are glued to their under or concave faces, to aid in the support of the boards and, at the same time, preserve the crown.

It has been the practice to produce a sounding board of this type by means of a table having a top which is concaved according to the crown desired in the sounding board. The board is then placed upon this table and the ribs, provided with glue, are laid thereupon according to certain markings after which resilient bars of wood are placed with their lower ends upon the ribs and are sprung between these ribs and a suitable overhead abutment such as the ceiling of the room in which the sounding boards are being prepared. As a result the ribs are forced tightly against the sounding board and the latter is forced into the concave table top where the two are held by the bars until the glue has set, thus attaching the ribs and producing the crown.

The operation just described, requires a large amount of time and the results are not always accurate, so that the object of this invention is to provide means for quickly and simultaneously attaching the ribs and crowning the board to produce a structure in which the ribs are accurately spaced and in contact with the board throughout their entire length.

A further object is to provide means for properly marking the rib ends for trimming and for marking the sound board for proper positioning of the bridges, such marking being coincident with the crowning and rib attaching operation.

Other objects of the invention will appear as the description proceeds.

An embodiment of the invention is shown in the accompanying drawings in which the same reference numeral is applied to the same portion throughout.

In the drawings:

Figure 1 is a side elevation of the apparatus used in the manufacture of the sounding board, a portion being indicated in dotted lines.

Figure 2 is a front elevation of the apparatus, at right angles to Figure 1.

Figure 3 is a plan view with the hinged upper portion removed and showing that portion indicated in dotted lines in Figures 1 and 2.

Figure 4 is a vertical section on the staggered line 4—4, showing a sound board in position.

Figure 5 is a vertical section on the line 5—5.

Figure 6 is a vertical section on the line 6—6.

Figure 7 is a vertical section on the line 7—7.

This invention comprises a table 10 which may be supported on legs 11 or in any other suitable manner. Pivoted to the table 10 through the medium of the hinges 12, is a crowning mould 13, the under side of which is concaved as indicated by the dotted line 14. This crowning mould may be maintained in a normally elevated position by means of the weight and pulleys, as shown, or in any other desired manner, it being held in a lowered or operating position by means of the pivoted clamping members 15 which are connected to the table by means of the links 16. On the upper side of the clamping plate 13 are bearing plates 17, to receive the ends of the clamping levers, the latter being formed with rounded portions 15′, to provide a rolling contact.

Resting upon the table is a gluing frame 18, as clearly shown in Figure 3 and as indicated in the dotted lines in Figures 1 and 2. This gluing frame is slightly larger than the sounding board to be produced and is held in position upon the table by means of removable pins 19, so that gluing frames of various shapes and sizes may be substituted.

Mounted upon the gluing frame 18 are a number of rib supports 20, the upper surfaces of which are channeled longitudinally as clearly shown in Figure 5.

Interposed between each rib support and the gluing frame is a longitudinal series of springs 21 while at the opposite sides thereof, are guide pins 22 arranged in pairs to prevent lateral movement of the supports, these pins being mounted in the gluing frame. To restrict the upward movement of the rib supports 20, and prevent longitudinal movement thereof a number of

screws 23 are arranged in the under side of each support, with their heads extending into recesses 24 in the gluing frame. Each of these screws passes through a plate 25, secured to the gluing frame, above each recess the heads of the screws limiting the upward movement of the rib supports upon coming into contact with the said plates.

After the ribs have been attached to the sounding board it is customary for their ends to be reduced in thickness and in order that these ribs may be properly marked to indicate the inward limit of the reduced portions, spurs 26 are mounted in the upper faces of the rib supports at proper points. It is also necessary for the bridges to be attached to the sounding board in predetermined places and these bridges must be accurately positioned. In order that the positioning of these bridges may be the same in connection with each sounding board, suitable marking spurs 27 are mounted on the gluing frame. In order that the sounding board 28, indicated in dotted lines in Figure 3, may be properly positioned upon the gluing frame, as will be hereinafter described, spring supported stops 29 are mounted at the rear side and at one end thereof.

In using this invention, the longitudinally arched faces of the ribs are first provided with glue after which each is placed in a rib support of corresponding length, this positioning being readily accomplished through the aid of the guide pins 22. When all of the ribs are thus arranged, the sounding board is placed on them as shown at Figure 4, with two of its edges in engagement with the stops 29, thus correctly positioning the same. The crowning mould 13 is then drawn downwardly upon the sounding board and is firmly held in position by means of the clamps 15. As will be readily understood, this clamping action, together with the springs beneath the rib supports, will force the ribs firmly against the sounding board and will force the sounding board into the concaved under face of the crowning mould 13, while the spurs 26 and 27 will, at the same time, properly mark the ribs for trimming and properly mark the sounding board for the positioning of the bridges. As the stops 29 are mounted on springs, they will recede as the crowning mould descends upon them. After the assembled parts have been held until the glue has set, it will be found that the sounding board has been given the proper crown and that the ribs have become tightly and accurately affixed thereto. The assembly is then removed and passed on for the rib trimming and bridge attaching operations.

It is to be understood that a gluing frame, separate from the table, will not be used excepting when sounding boards of different sizes are to be produced. When the sounding boards are to be of the same size, the rib supports may be mounted directly upon the table 10, which then takes the place of the gluing frame.

What is claimed is:

1. A piano sounding board press including a gluing frame, rib supports carried by the gluing frame and mounted for movement toward and away therefrom, resilient means for urging the rib supports out of engagement with the gluing frame, means for limiting the outward movement of the rib supports, spurs carried by the rib supports and the gluing frame, and a concaved crowning mould associated therewith and arranged for movement in the direction of the gluing frame.

2. A piano sounding board press including a gluing frame, guide pins carried by the gluing frame, rib supports mounted between the guide pins, spring interposed between the ribs and the gluing frame, means for limiting the upward movement of the rib supports, marking spurs carried by the rib supports and a concaved crowning mould associated therewith and arranged for movement toward and away from the gluing frame.

3. A device for simultaneously crowning a sounding board and attaching ribs thereto, including a gluing frame, a crowning mould arranged for operation toward and away from the gluing frame and rib supports associated with the gluing frame, said rib supports being mounted for movement toward the gluing frame upon operation of the crowning mould toward the gluing frame.

4. A device for simultaneously crowning a piano sounding board and attaching ribs thereto including a gluing frame, a crowning mould arranged for operation toward and away from the gluing frame and resiliently supported rib supports carried by the gluing frame, said rib supports being mounted for individual movement toward the gluing frame upon operation of the crowning mould toward the gluing frame.

5. A device for simultaneously crowning a piano sounding board and attaching ribs thereto, including a gluing frame, a crowning mould arranged for operation toward and away from the gluing frame, rib supports associated with the gluing frame, resilient means for urging the rib supports out of engagement with the gluing frame and means for limiting the outward movement of the rib supports, said supports being adapted to move toward the gluing frame upon operation of the crowning mould toward the gluing frame.

6. A piano sounding board press including means for crowning a sounding board and attaching ribs thereto and means for marking the sounding board for a subsequent operation, both of said means being

constructed and arranged for simultaneous operation.

7. A step in the manufacture of sounding boards for pianos which consists of simultaneously crowning the sounding board, attaching the ribs thereto and marking the ribs for a subsequent operation.

8. A step in the manufacture of sounding boards for pianos which consists of simultaneously crowning the sounding board, attaching the ribs thereto and marking the sounding board for a subsequent operation.

9. A sounding board press including a gluing frame, a crowning mould arranged for operation toward and away from the gluing frame, rib supports connected with the gluing frame, means for resiliently supporting said rib supports, guide pins arranged at opposite sides of the rib supports and spurs carried by the rib supports and the gluing frame, said rib supports being adapted to move in the direction of the gluing frame upon operation of the crowning mould.

In testimony whereof, we affix our signatures.

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LOUIS K. VOGT.