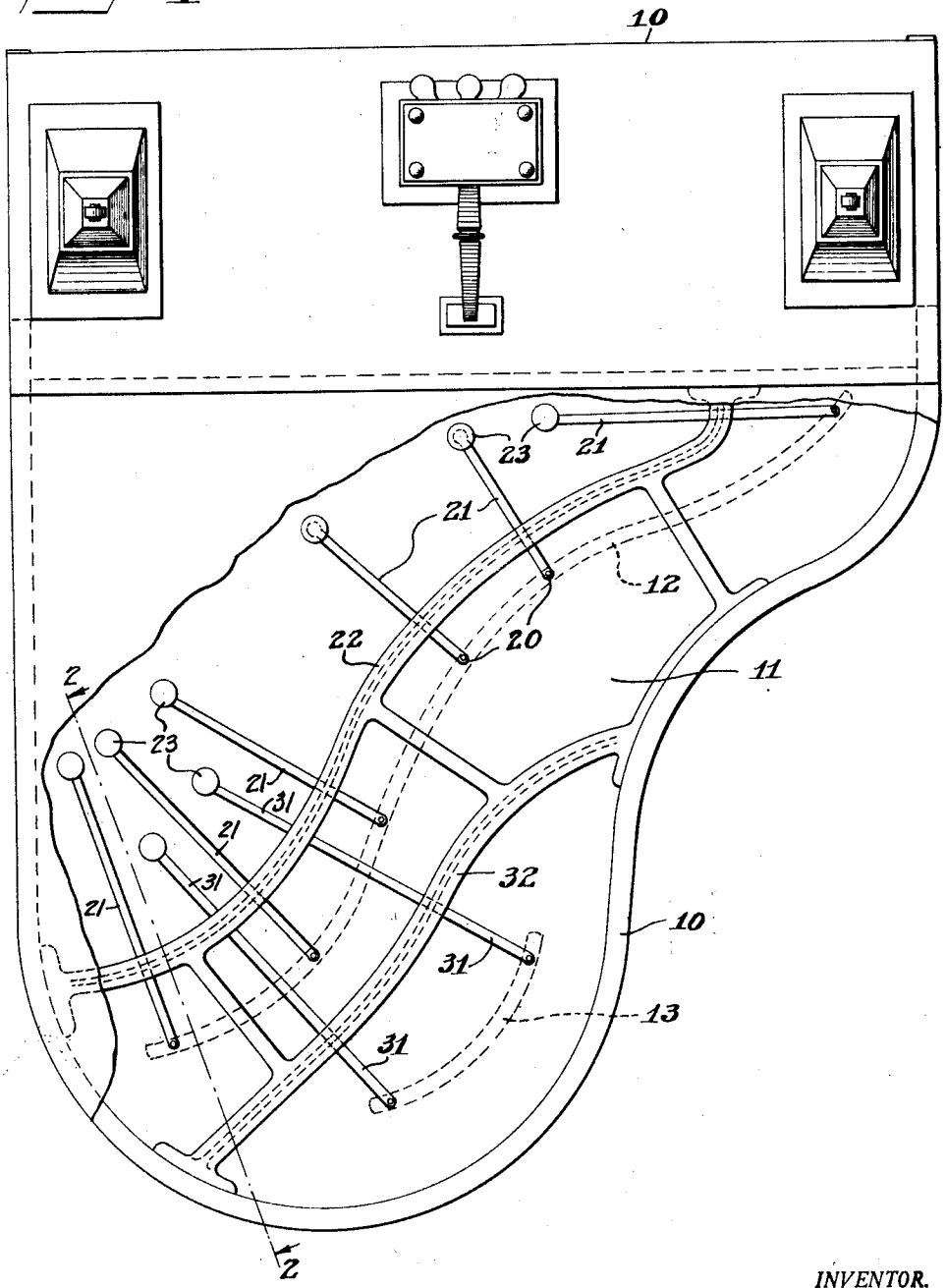
Oct. 13, 1931. J. H. HAMMOND, JR 1,826,778

PIANO WITH FLOATING BRIDGE

Filed June 13, 1929 3 Sheets-Sheet 1

Fig 1



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PIANO WITH FLOATING BRIDGE

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Fig 2

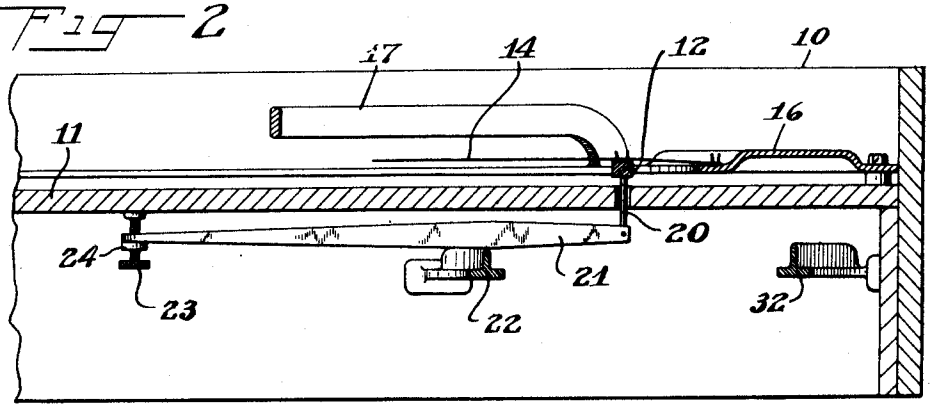
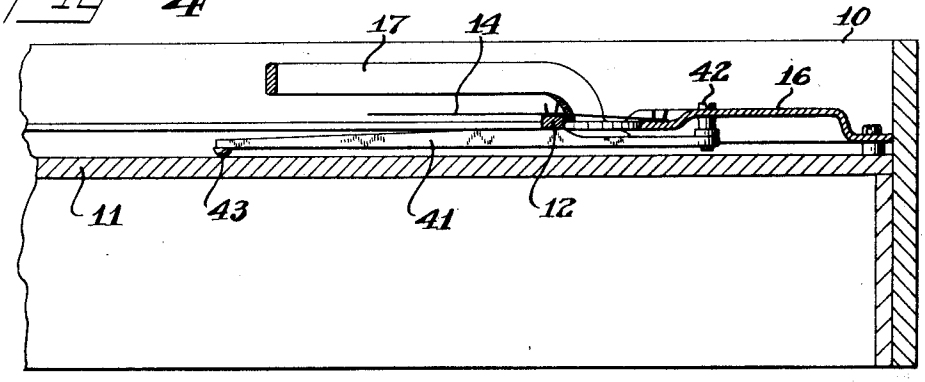


Fig 4



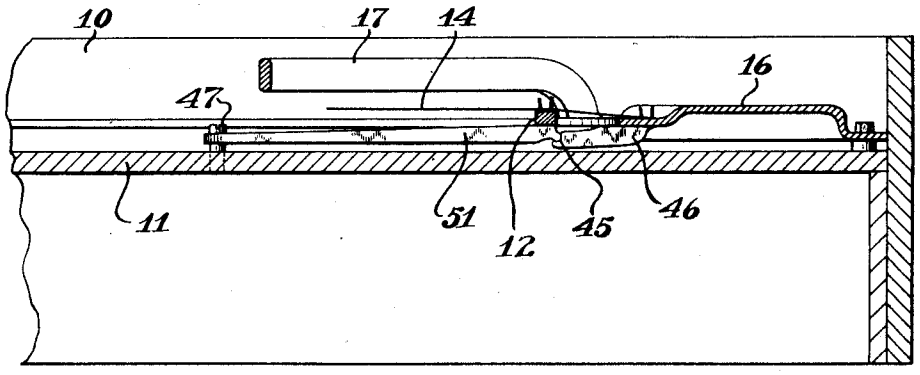


Fig 5

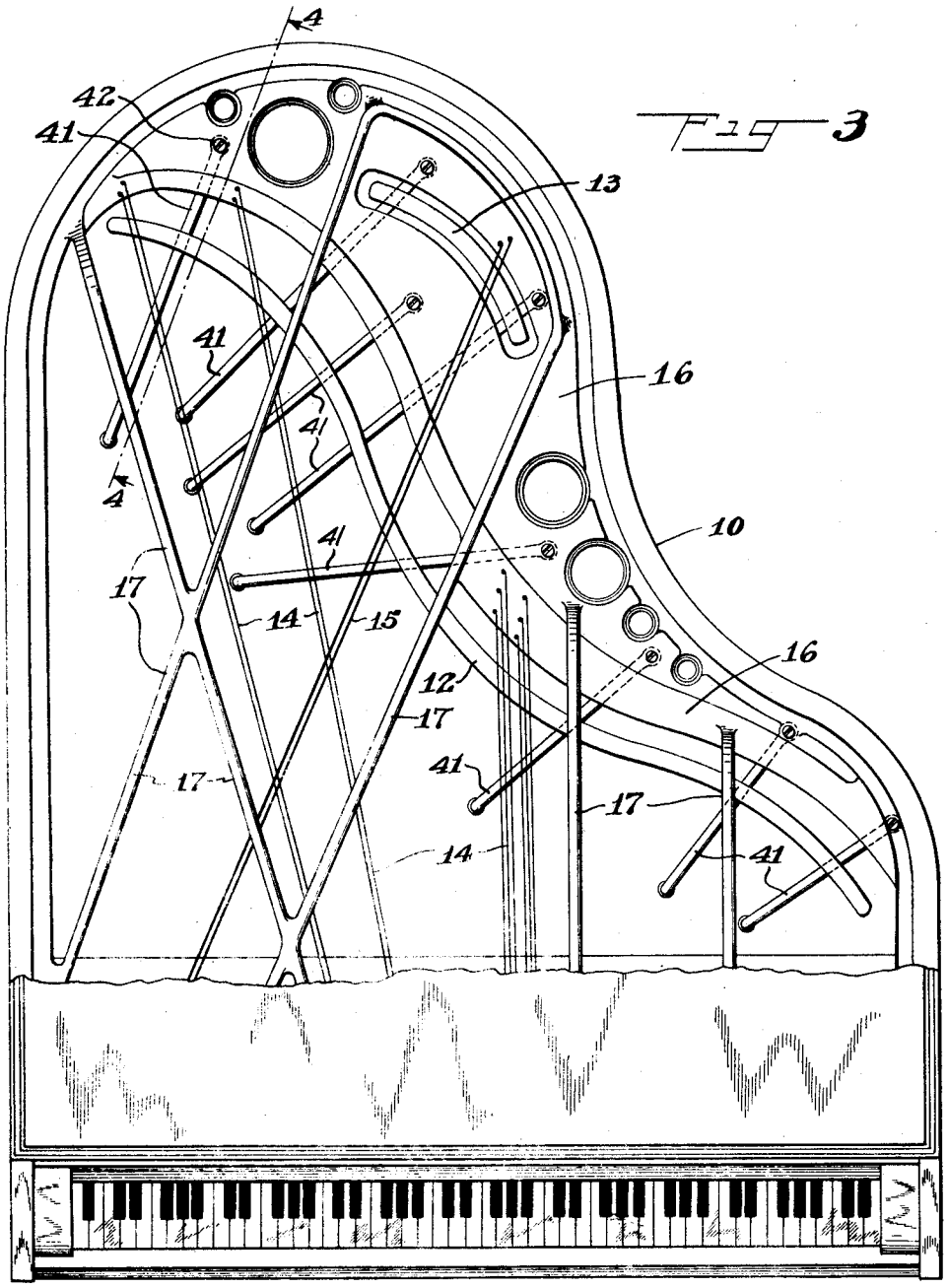
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Fig 3



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UNITED STATES PATENT OFFICE

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PIANO WITH FLOATING BRIDGE

Application filed June 13, 1929. Serial No. 370,485.

This invention relates to a piano, and more particularly, to a piano having mechanical means incorporated therein for amplifying the vibrations of the strings and impressing the vibrations upon the sounding board in amplified form.

The invention provides a piano having a floating bridge which is mounted upon a pivoted lever having arms of unequal length. The lever is fulcrumed on the frame of the piano and bears against the sounding board in such manner that the vibrations of the strings which are transmitted through the bridge to the lever are applied by said lever to the sounding board.

The invention also provides for applying vibrations to the sounding board at the most advantageous points such as the anti-nodal points or the points of greatest vibration. This is accomplished in accordance with the present invention irrespective of the location of the bridge itself.

The invention also consists in certain new and original features of construction and combinations of parts hereinafter set forth and claimed.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its objects and advantages, the mode of its operation and the manner of its organization may be better understood by referring to the following description taken in connection with the accompanying drawings forming a part thereof, in which

Fig. 1 is a bottom plan view of the piano showing the levers for supporting the floating bridge;

Fig. 2 is a section taken on the line 2—2 of Fig. 1;

Fig. 3 is a top plan view of the piano showing the location of the various parts;

Fig. 4 is a section taken on the line 4—4 of Fig. 3; and

Fig. 5 is a section similar to Fig. 4 showing a modified form of support for the lever.

Like reference characters denote like parts in the several figures of the drawings.

In the following description and in the claims parts will be identified by specific names for convenience, but they are intended to be as generic in their application to similar parts as the art will permit.

Referring to the drawings more in detail, the invention is shown as applied to a grand piano 10 having a sounding board 11, bridges 12 and 13, strings 14 and 15 and frame 16. Said frame and strings are supported by sounding board 11 in any convenient manner. Frame 16 is provided with a plurality of braces 17 which are suitably located for strengthening the entire assembly as desired.

As shown more in detail in Fig. 2, bridge 12, over which the strings pass, is mounted by link 20 on one end of lever 21 which is pivoted over a stationary frame member 22. The other end of lever 21 is adjustably secured to sounding board 11 by means of thumb screw 23 having a lock nut 24. Bridge 13 is mounted on levers 31 which are pivoted on frame member 32 and bear at their free ends against the sounding board in the same manner as levers 21.

It is to be noted that in the form of the invention described above the pressure produced by the strings is transmitted upwardly through lever 21 to the sounding board. Accordingly, the sounding board will be crowned in the opposite direction to the usual construction in which the pressure is downwardly transmitted. The free ends of the various levers are preferably located at anti-nodal points of the sounding board so that the maximum energy transfer may be obtained.

In the modification shown in Fig. 4 the lever 41 is employed for transmitting the vibrations from the strings to the sounding board, and is mounted so that the energy is transmitted to said sounding board in a downward direction. For this purpose lever 41 may be mounted on frame 16 as by pin 42 and its free end provided with a foot 43 which bears against the surface of sounding board 11. Bridge 12 is supported on lever 41 and carries strings 14 in the usual manner.

A further modified form of mounting for the lever is shown in Fig. 5 in which one end of lever 51 is pivoted in a socket 45 which is

carried on bracket 46 attached to the underside of frame 16. The other end of lever 51 may be secured to the sounding board as by screw 47.

The socket 45 is preferably mounted under or closely adjacent bridge 12 so that horizontal movement of the bridge may be converted into vertical movement at screw 47 and thereby cause vertical vibrations of the sounding board. It has been found that a substantial horizontal motion is imparted to the bridges of the piano by the vibrations of the strings. This construction, therefore, is provided to utilize this horizontal motion and convert the same into motion in a direction capable of operating the sounding board.

The above described invention insures the transmission of the energy of vibration of the strings of the sounding board in a most efficient manner. Normally the pianist can cause the strings to vibrate with a greater force than the strings are capable of transmitting to the sounding board. This invention provides means whereby the full force of the vibrations are transmitted to an anti-nodal point of the sounding board. The maximum vibrations are accordingly produced in a sounding board and the volume of sound emitted by the piano is increased.

While certain novel features of the invention have been shown and described and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes in the forms and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. In a stringed instrument having a sounding board, a bridge for supporting said strings, means for supporting said bridge free from said sounding board and means for mechanically amplifying the vibrations of said bridge and transmitting said vibrations to an anti-nodal point of said sounding board.

2. In a piano, a plurality of strings, a sounding board, a bridge supporting said strings, a lever supporting said bridge, a stationary member pivotally carrying said lever, and means for securing said lever to said sounding board.

3. In a piano, a plurality of strings, a sounding board, a bridge supporting said strings, a lever supporting said bridge, a stationary member pivotally carrying said lever, and means for adjustably securing said lever to said sounding board.

4. In a piano having a sounding board and a plurality of strings, a bridge carrying said strings, means for mounting said bridge free of said sounding board, means for amplifying the vibrations of said bridge and for applying said amplified vibrations to an anti-nodal point of said sounding board.

5. In a piano having a plurality of strings and a sounding board, a bridge cooperating with said strings, means for converting vibrations of said bridge in a direction parallel to said sounding board into vibrations in a direction perpendicular to said sounding board, and means for operating said sounding board in accordance therewith.

6. In a piano having a sounding board, strings and a bridge, said strings causing said bridge to vibrate in a direction parallel to said sounding board, a lever mechanism supporting said bridge and attached to said sounding board, said lever mechanism being operable in response to said vibrations of said bridge for transferring said vibrations to said sounding board and causing said board to vibrate in a direction normal to that of said bridge.

7. In a piano, a plurality of strings, a sounding board, a bridge supporting said strings, a lever supporting said bridge, a stationary member pivotally supporting said lever at a point adjacent said bridge, and means for securing said lever to said sounding board.

In testimony whereof I have hereunto set my hand and seal.

JOHN HAYS HAMMOND, JR.