(No Model.)

# J. R. LOMAS.

## PIANO SOUNDING BOARD.

No. 320,264. Patented June 16, 1885.

Fig. 1

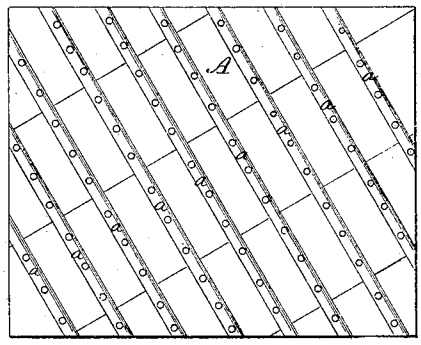
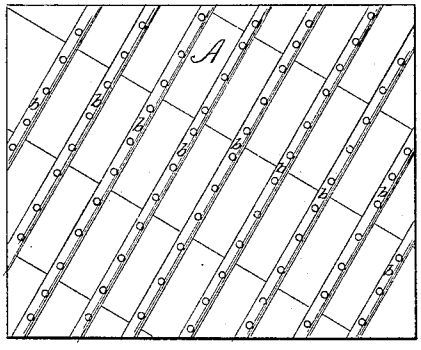



Fig. 2



Fig. 3




Witnesses
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# UNITED STATES PATENT OFFICE.

JOHN R. LOMAS, OF NEW HAVEN, CONNECTICUT, ASSIGNOR OF ONE-HALF TO B. SHONINGER, OF SAME PLACE.

## PIANO SOUNDING-BOARD.

SPECIFICATION forming part of Letters Patent No. 320,264, dated June 16, 1885.

Application filed August 25, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN R. LOMAS, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Piano Sounding-Boards; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view of one side; Fig. 2, a longitudinal section through the board and ribs; Fig. 3, the board inverted from Fig. 1, showing the reverse side.

This invention relates to the construction of the sounding-board for pianos and like musical instruments.

In the more general construction of sounding-boards of pianos they are made very thin, and strengthened by series of ribs glued upon one side across the grain of the board. The sounding-board is necessarily thin, and is directly exposed to the changes in the atmosphere. The board being so thin is easily affected by such changes in the atmosphere. The result is that when the atmosphere is of a damp character, the board absorbs more or less moisture, and consequently expands in width, and because of the ribs upon one side preventing or holding back upon such expansion, the effect is produced upon the reverse side of the board, causing it to expand on that side, and therefore the board to warp accordingly; or under a hot, dry atmosphere the reverse effect is produced—that is, the ribs upon one side prevent the board from contracting upon that side, while the other, being without protection, contracts, and warps the board accordingly. The board is therefore undergoing constant changes in shape, which affects the tone of the instrument to a greater or less extent. To avoid as far as possible such warping of the board, the ribs are made heavy and strong. The weight of these ribs detracts very much from the effect of the sounding-board, the best effect possible being produced when the board is of equal thickness throughout—that is, without the ribs.

It is impossible in the manufacture of sounding-boards to so dry, season, or treat the board that it will not be subject to such changes of atmosphere, and however perfectly the board may be seasoned and applied in the atmosphere of the manufactory, the change of atmosphere from the manufactory to the place of use will either shrink and crack the board or swell and twist it out of shape. These difficulties are recognized by all manufacturers of pianos.

The object of my invention is to overcome these difficulties, as well as to avoid the strong heavy ribs heretofore applied to the board; and the invention consists in attaching to both surfaces of the board light parallel ribs arranged at substantially right angles to the grain of the board and made fast to the board, with a series of pins extending through the ribs and the board, and so that the ribs on both sides will alike resist expansion or contraction, or other effects of the atmosphere upon the board, as more fully hereinafter described.

I first prepare the board in the usual manner and of substantially the usual thickness, being made in pieces thoroughly seasoned or dried and glued together, A representing the board. Upon one surface I apply a series of narrow light ribs, *a a*, running at right angles to the grain of the board, as indicated in Fig. 1, and upon the reverse side I apply a like series of ribs, *b*, corresponding to the ribs *a* upon the opposite side, and each rib of the series on one side in line with the rib of the series on the opposite side. These ribs are glued to their respective surfaces while the board is in its most contracted form. Those on one side are of the same size and weight of those on the opposite side, and preferably I introduce a series of pins or screws, *d*, (preferably wood,) through the ribs and the board, as indicated in Fig. 2, and within short distances of each other, so as to connect the ribs through the board, each pin forming a bearing in the board to resist any tendency of the board to expand or contract, and to bring that resistance within very narrow limits.

By this construction both sides of the board

are stayed alike, the resistance is alike upon both sides, and any tendency of the board to expand or contract is met by the ribs alike on both sides, and consequently any change of shape of the board when once fixed is impossible.

These ribs thus arranged are so much lighter than the ribs heretofore employed that the detrimental effect of the weight of such larger ribs is to a great extent overcome.

The pins *d* should be harder than the wood from which the board is made.

I claim—

A sounding-board having a like series of ribs on both surfaces combined with series of pins extending through the ribs and boards, substantially as described.

JOHN R. LOMAS.

Witnesses:
MORITZ MENDELSOHN,
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