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J. H. SCHUCHT.

Improvement in Sounding Boards for Musical Instruments.

No. 122,196.

Patented Dec. 26, 1871.

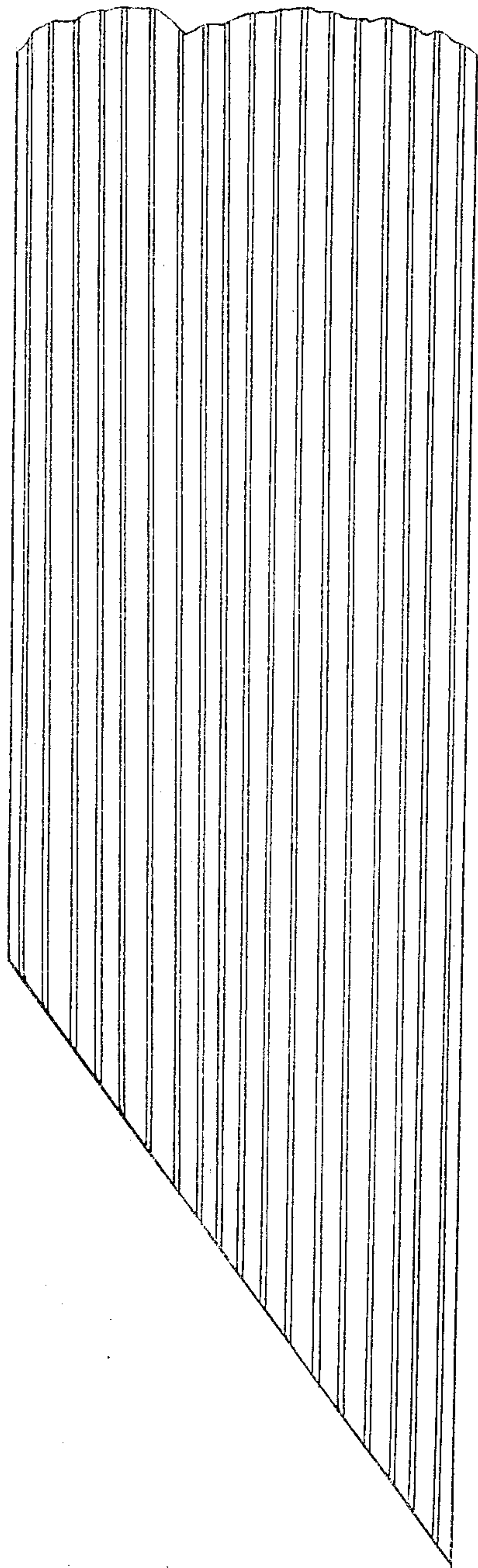


Fig. 1.

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UNITED STATES PATENT OFFICE.

JOHN HENRY SCHUCHT, OF LONDON, ENGLAND, ASSIGNOR TO CHARLES F. L. GOFFRIE.

IMPROVEMENT IN SOUNDING-BOARDS FOR MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. 122,196, dated December 26, 1871.

To all whom it may concern:

Be it known that I, JOHN HENRY SCHUCHT, of London, Middlesex county, England, have invented, made, and applied to use certain new and useful Improvements in the Construction of Sounding-Boards for Musical Instruments, for which Letters Patent were granted me in England September 15, 1868; and that the following is a full, clear, and correct description of my invention, reference being had to the accompanying drawing making a part of this specification and to the letters of reference marked thereon, in which—

Figure 1 is a front elevation of my improved sounding-board.

In the drawing like parts of the invention are designated by the same letters of reference, and the drawing is made to correspond in size with the model sent herewith.

The nature of the present invention consists in certain improvements, as more fully hereinafter set forth, in the construction of sounding-boards, for musical instruments; the object of the invention being the production of a sounding-board superior to those now in use, thus improving the tone of a piano-forte or other instrument to which the sounding-board may be applied.

The tone of a piano-forte depends greatly on the quality of the sounding-board. At present wood is selected for this purpose, of a kind which is very straight in the grain, and which consists very distinctly of alternate layers or plates of hard and soft material. The Swiss pine is a wood very commonly used. It is difficult, however, to find wood of sufficiently regular structure to produce the best result, nor can the suitability of the wood be accurately ascertained until the instrument is completed; hence, to a certain degree, the quality of the instrument is matter of chance.

My improvement consists in constructing sounding-boards artificially of alternate plates of hard and soft material; for example, beech and poplar woods are very suitable; but plates of other materials that can be conveniently joined together can be used. The plates of the soft wood, such as poplar, should, if the sounding-board be a quarter of an inch in thickness, be about one-eighth of an inch thick, and the plates of the hard wood, such as beech, should be thinner and vary in thickness, according to their po-

sition in the finished sounding-board relatively to the scale of the instrument. The plates are glued together side by side, the plates of the soft wood and of the hard wood being placed alternately. For convenience of construction I prefer to commence operations by first forming or building a block of wide plates of the hard and soft material, and then to cut off slices of the desired thickness from the block so prepared. Instead of using two kinds of wood, such as beech and poplar, other relatively hard and soft materials may be used by joining them in juxtaposition; and I would remark that the difference between the two materials I prefer to be such that the hardness of the one is about double that of the other—that is to say, in the case of wood, in order to cause a needle-point to penetrate a given distance by pressure, the weight required for the hard wood will be double that required for the soft wood. The difference between the relative hardnesses of the materials employed to form the layers or plates of my artificial sounding-boards may, however, be considerably more than in the proportion of two to one. The two materials employed should differ considerably in specific gravity. The same arrangement of materials differing in hardness is also applicable for the construction of parts of violins and guitars; organ-pipes may also be similarly constructed. Although I have mentioned wood as being the material ordinarily used, and as being a material in which different kinds of varying hardness may be easily obtained, it should be understood that sounding-boards may be made on my improved system by placing in juxtaposition plates made of other materials. For instance, plates of metal or of glass might be used in juxtaposition with plates of wood or other elastic material, and the quality of the sounding-board so made would be found to vary according to the materials employed. Sounding-boards may be thus made suitable for various purposes, according to the quality of the tone required to be possessed by the instruments, respectively.

In order that my mode of manufacture may be fully understood, I will describe the mode in which I proceed to manufacture the sounding-board of a piano-forte, which will illustrate an ordinary application of my improvement.

The strips or veneers intended to be used in forming the sounding-board to be made up are

cut in continuous lengths from a log of wood of the required character and quality. This is done by mounting a length of wood across from the entire stem of a tree upon centers and cutting therefrom a strip of veneer of the desired thickness by a knife, which is caused to move slowly up toward the center of the log at the same time that the log is rotated in the manner now commonly practised for cutting veneers. The soft wood and the hard wood are respectively cut into sheets or strips, which are afterward divided up into any desired lengths. The lengths of wood formed of the part cut from the inner portion of the tree I prefer using to form the treble end of the sounding-board, while the lengths which have come from the outer portion of the tree I select for forming the portion of the sounding-board at the bass end. The several lengths of veneer of hard and soft wood are then glued together in juxtaposition in alternate layers, taking care to place the side of each strip of wood which originally was toward the center of the tree toward the treble end of the sounding-board, until a block, say, of about six inches in depth has been formed, or blocks of greater depth may be employed. The length of wood formed of the exterior part of the tree should be made up into blocks by themselves separate from the

blocks made up from the veneers from the inner or central part of the tree. The blocks so made up are afterward divided by saws transversely of the several layers of wood so as to form boards of about one-quarter of an inch in thickness. The sounding-board for a piano-forte is then made up by placing the required number of such boards edge to edge and gluing them together in the manner now practised in making sounding-boards of the ordinary wood.

By forming the veneers or strips of wood intended to be formed into blocks by cutting them in the manner above described I insure that the grain of the wood shall be in a straight line, or very nearly so, through all the several strips of which a sounding-board made up therefrom is composed; and this is of great advantage.

Having now set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

A sound-board formed of alternate layers of hard and soft materials, substantially as and for the purposes described.

October 13, 1871.

J. H. SCHUCHT.

In presence of—

E. SCHERZER,

T. D. SCHINEWALD.

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