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PATENTED MAY 3, 1904.

C. S. WEBER.

BRIDGE AND BINDER FOR STRINGED MUSICAL INSTRUMENTS,

APPLICATION FILED AUG. 19, 1903.

NO MODEL.

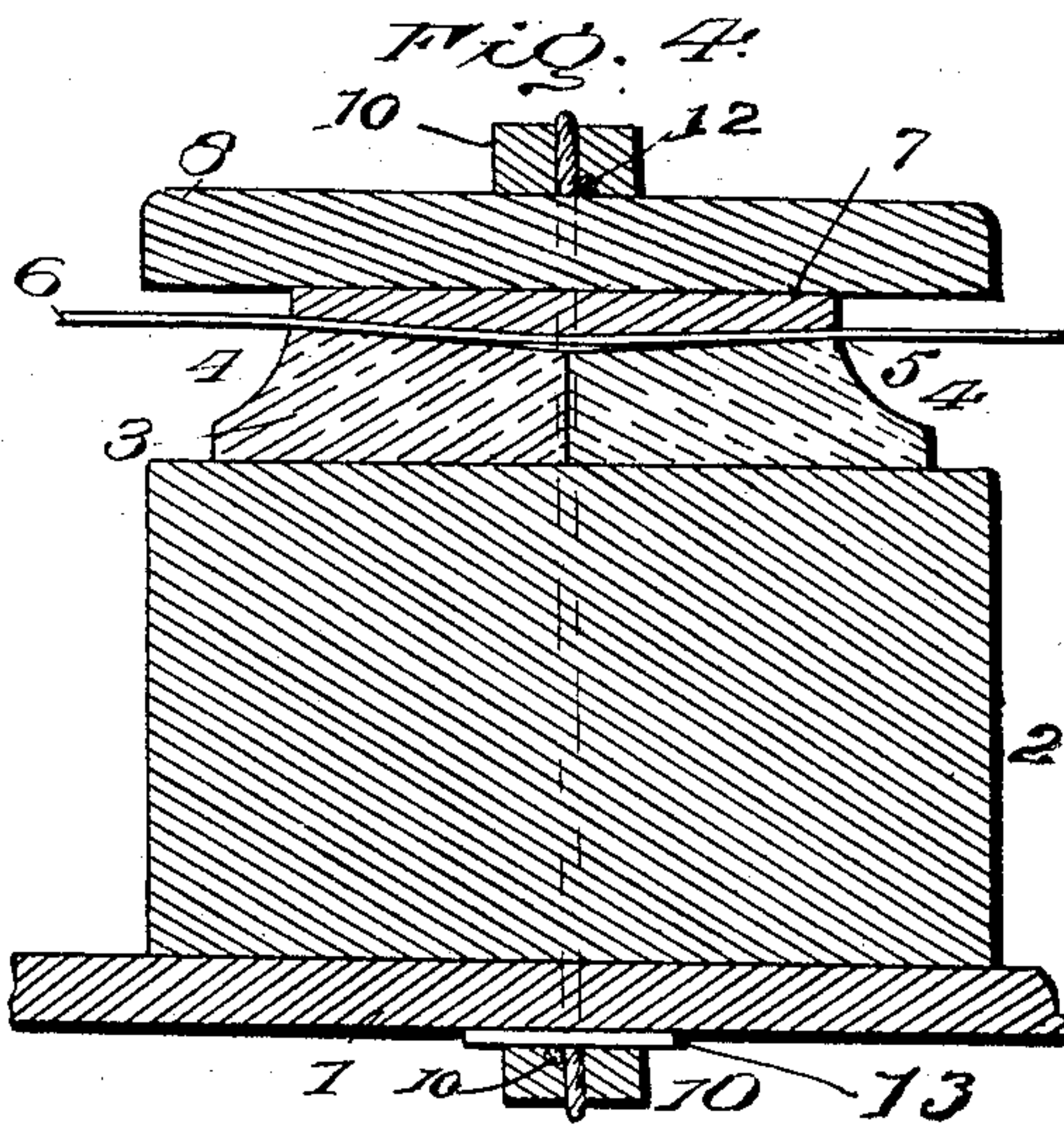
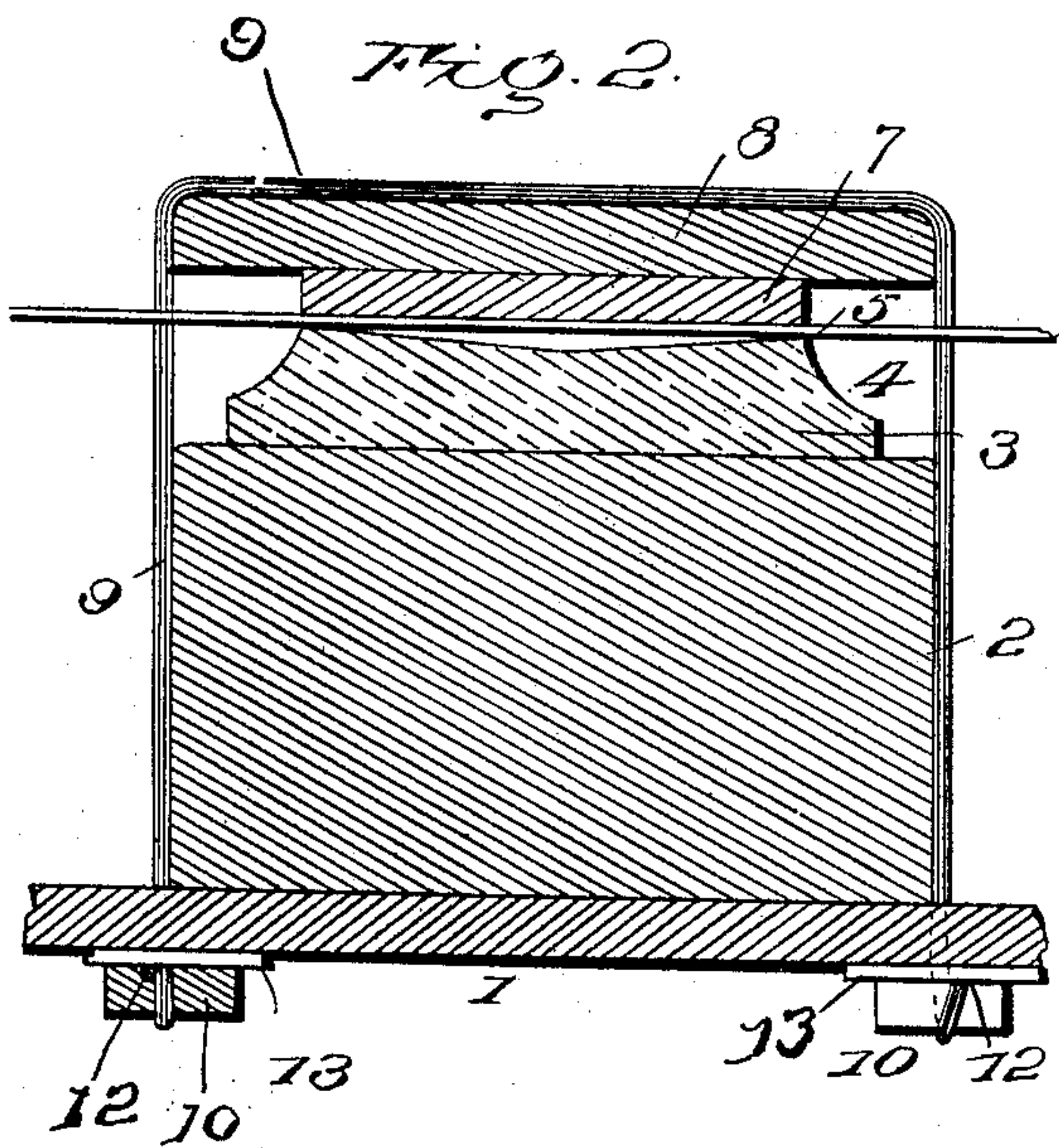
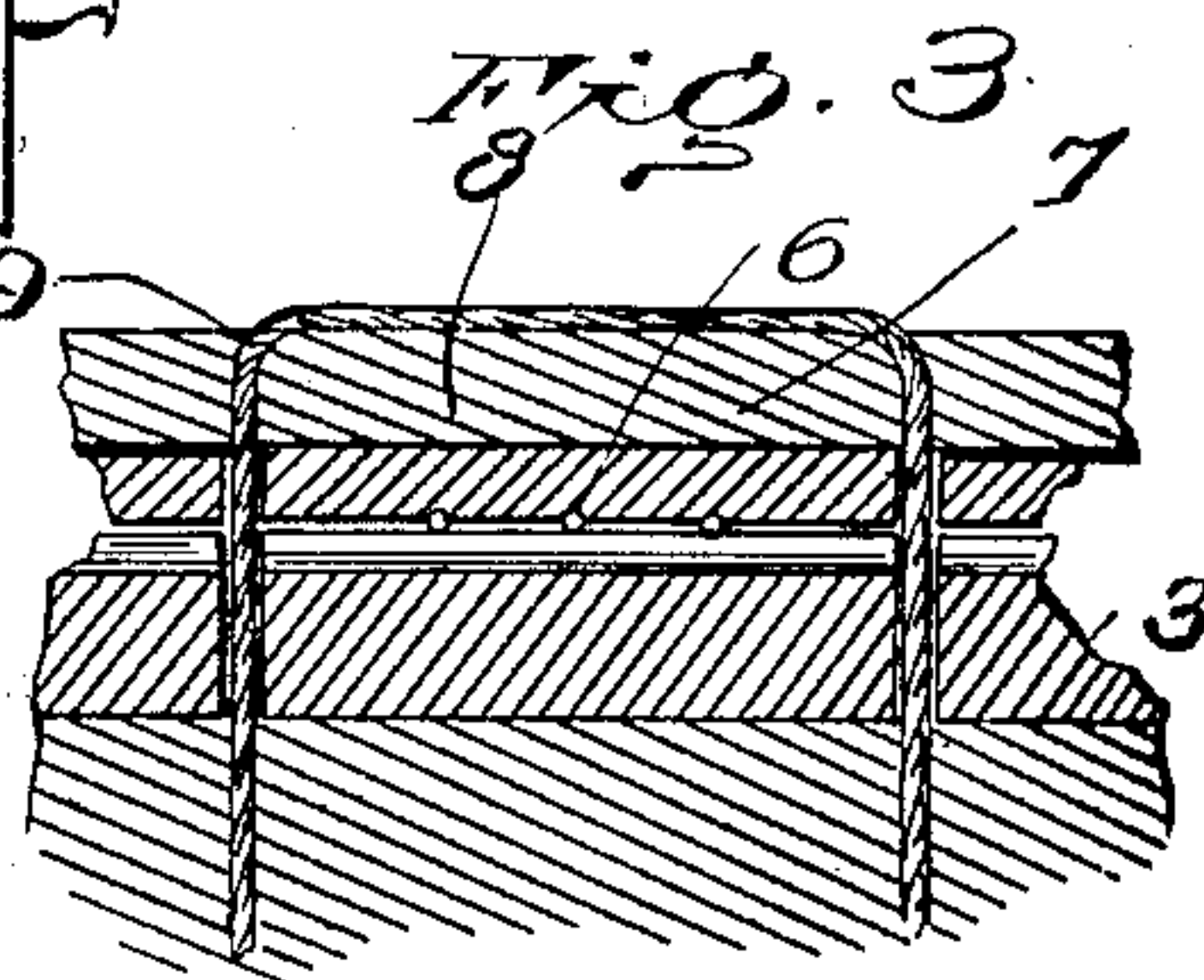
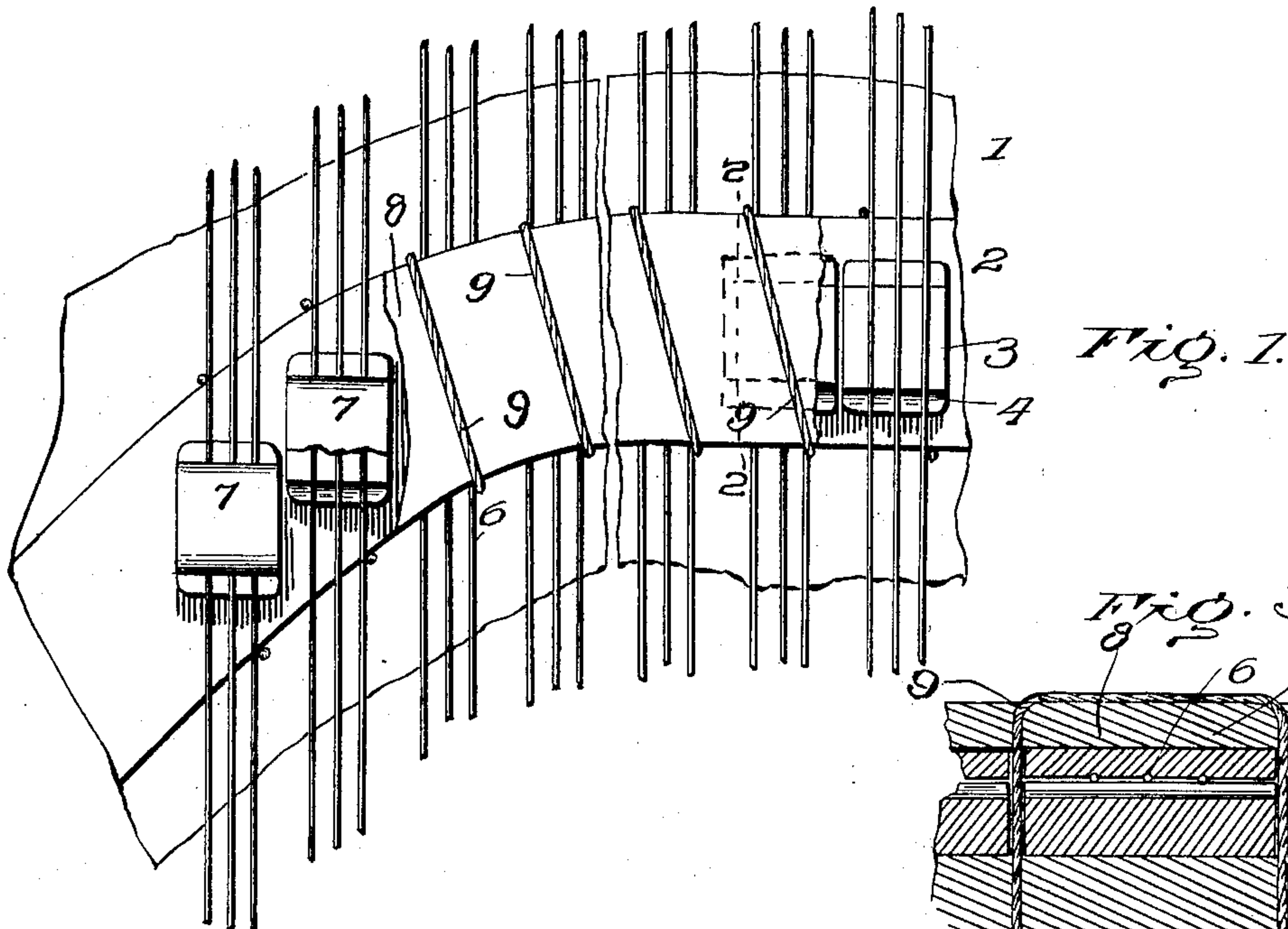


Fig. 5.

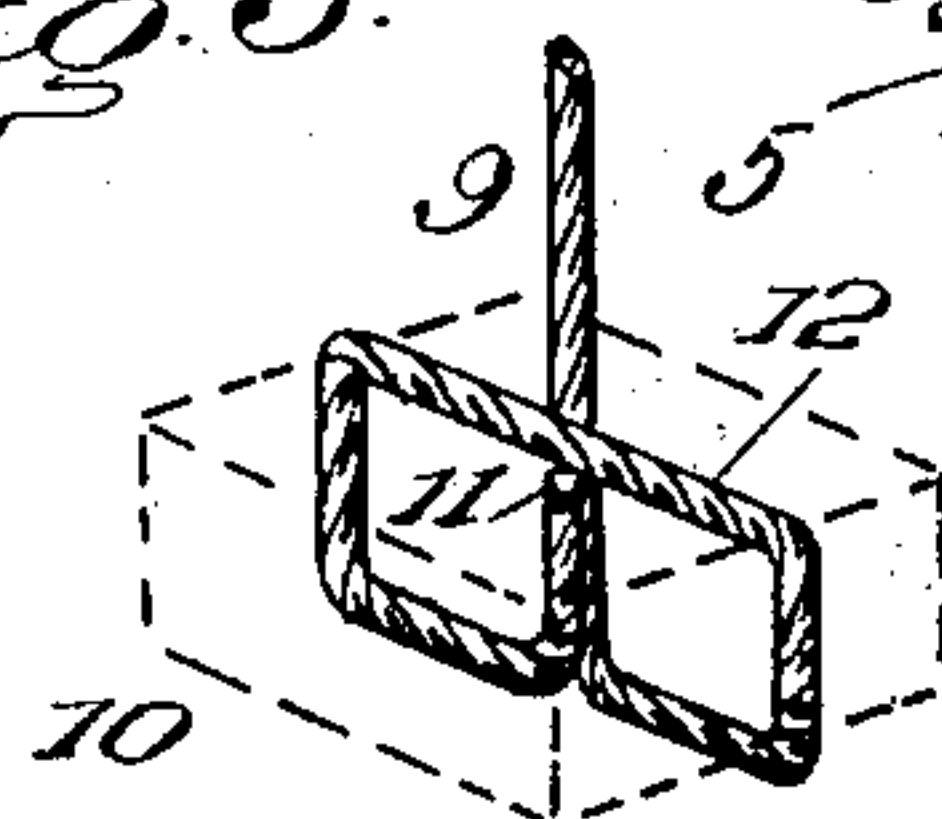
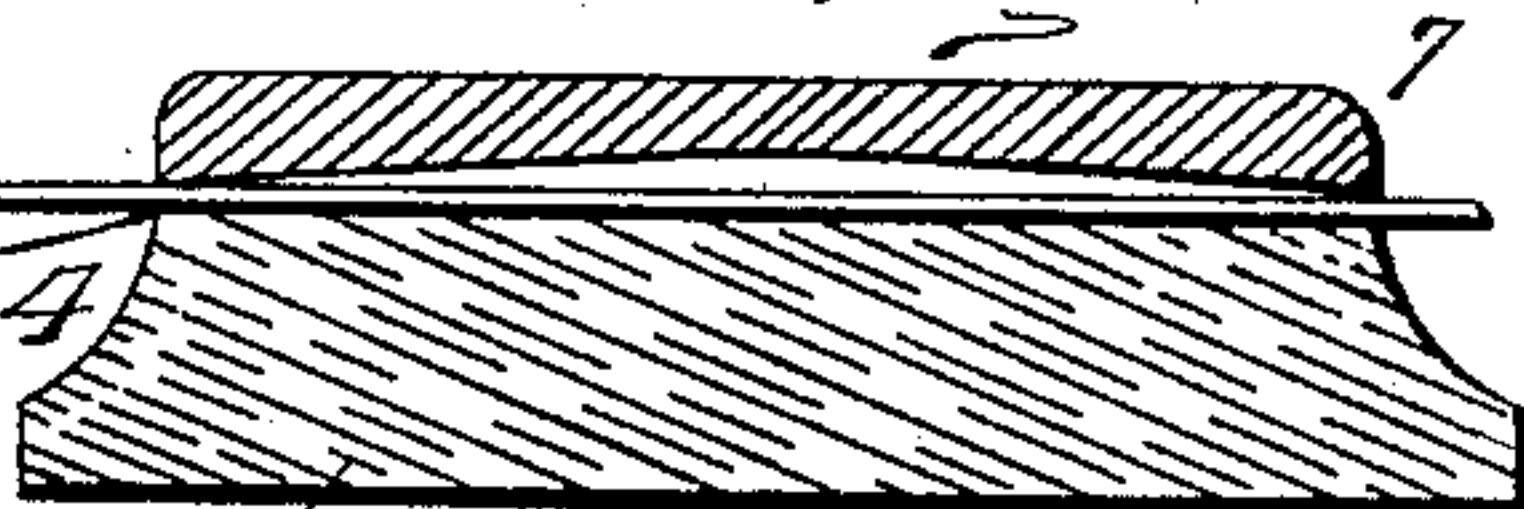


Fig. 6.



Witnesses

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BRIDGE AND BINDER FOR STRINGED MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 758,879, dated May 3, 1904.

Application filed August 19, 1903. Serial No. 170,078. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. WEBER, a citizen of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented certain new and useful Improvements in Bridges and Binders for Stringed Musical Instruments, of which the following is a specification.

This invention is primarily designed to improve the quality of tone of pianoforte and kindred musical instruments and to minimize the influences tending to detract from the clearness and purity of tone emanating from the strings when set in vibration by the hammers or other accustomed means, according to the type of instrument embodying the invention.

In accordance with this invention the sounding-board bridge of the instrument is surmounted by a rest or string-pillow, of glass or kindred material, having two points of contact for the string or strings, a pressure-piece for confining the strings on the rest or string-pillow, a cap, and a binder for confining the parts and securing them to one another and to the sounding-board.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a fragmentary view of the sounding-board, bridge, strings, and coöperating parts of a pianoforte, illustrating the application of the invention. Fig. 2 is a section on the line 2 2 of Fig. 1, showing the parts on a larger scale. Fig. 3 is a section of the parts shown in Fig. 2, having the binder arranged at a right angle to the length of the strings. Fig. 4 is a view similar to Fig. 2, showing a modification of the string-pillow or rest and the binder. Fig. 5 is a detail perspective

view of the tension-block. Fig. 6 is a detail view showing a modification.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The sounding-board is indicated at 1 and the bridge at 2, the parts being of any structural type, according to the pattern and make of the instrument embodying the invention. The string-pillow or rest 3 surmounts the bridge 2, and is cemented or otherwise affixed thereto, so as to maintain a determinate position. The rest or string-pillow 3 is preferably of glass, although any vitreous material or substance of kindred nature may be employed. The ends of the rest are hollow-ground, as shown at 4, so as to provide a well-defined contact-point 5 and a maximum amount of contact with the bridge 2. Practical experimentation has demonstrated that the best results in quality of tone are obtained by having the ends of the rest or string-pillow hollow-ground. While the upper side of the rest may be straight, yet it is preferred to have it synclinal, the planes intersecting with the hollow-ground end portions 4 to provide the string contact-points 5, which sustain the clamping action of the force confining the strings 6 to the rest or string-pillow 3. Each string or set of strings is provided with a rest or string-pillow, as indicated most clearly in Fig. 1, thereby enabling the spaced contact-points 5 to be arranged at a right angle to the strings of each group of strings. The rest or string-pillow may consist of a single block, as indicated in Fig. 2, or may be composed of two sections, as indicated in Fig. 4, the latter construction admitting of said sections being of different material. The section of the rest or string-pillow adjacent to the wrest-plank is invariably of glass, whereas the other section may be of wood or kindred material, according to the exigencies of the construction.

The pressure-piece 7 is of some soft material, as wood, and is of a length corresponding to the distance between the contact-points 5, so as not to project beyond the same, as indi-

cated most clearly in Figs. 2 and 4. This pressure-piece is placed upon the strings 6 and confines the same to the rest or string-pillow 3, the strings becoming partially embedded in the pressure-piece, as indicated most clearly in Fig. 3. A separate pressure-piece is provided for each rest or string-pillow.

The cap 8 parallels the bridge 2 and may be of any material and is secured to the sounding-board 1 by means of a series of binders 9. Each of these binders 9 is composed of a series of threads or strands, preferably of fibrous material, said strands being twisted together to obtain the proper degree of force or binding action for confining the parts to one another and to the sounding-board. The binders may be of U form, as indicated most clearly in Figs. 1, 2, and 3, or may be straight, as shown in Fig. 4. When the binders are of U form, they embrace the cap, pressure-piece, rest, and bridge, as shown most clearly in Figs. 2 and 4, and when straight the binders pass through openings in said parts in coincident relation, as indicated most clearly in Fig. 4. The ends of the binders are provided with tension-blocks 10, which are adapted to be turned so as to twist the threads or strands to tighten the binders more or less, the friction between the tension-blocks and the part against which they bear being sufficient to prevent backward rotation of the tension-blocks after the binders have been tightened to the requisite degree. The binders may be secured to the tension-blocks in any manner to insure the twisting of the strands, threads, or elements when turning the blocks. The binders normally appear as a loop or hank, and the tension-blocks are applied to the end portions preferably by having the ends of the loop passed through an opening 11 of the blocks, thence turned to embrace the blocks, as indicated most clearly in Fig. 5. The side of the tension-block designed to bear against either the sounding-board 1 or the cap 8 is grooved, as shown at 12, to receive the portion of the binder extending across it. This enables said side to engage frictionally throughout its area with the part against which it bears, thereby preventing slipping of the block when turned to obtain the requisite tension upon the binder. As shown in Figs. 1 and 2, the binder embraces opposite edges of the cap and bridge. As shown in Fig. 3, the legs or end portions of the binder pass through openings formed about central of the cap and bridge. Usually the rests or string-pillows are arranged with their edge portions in contact or slightly spaced, as indicated in Fig. 1; but when the binders are to be arranged as indicated in Fig. 3 said rests may be spaced apart a sufficient distance to admit of the legs of the binders passing between them, as indicated in Fig. 3.

To prevent marring or injuring the sounding-board and the cap when turning the ten-

sion-blocks to tighten or loosen the binders, a reinforcement 13 is interposed between said tension-blocks and the parts 1 and 8 to sustain the wear and thrust. This reinforcement may be a thin strip of maple or other hard and wear-resisting material, and is preferably glued to either the sounding-board or the cap. To the attainment of a clear and pure tone it is thought essential that the strings exert a maximum pressure upon the points 5 5 of the rest or string-pillow. This may be accomplished by depressing the upper side of the rest or by making the lower side of the pressure-piece hollow, as shown in Fig. 6. Moreover, by clamping the strings at two points, as 5 5, extremely light and slender binders may be successfully employed, and the strings can slip easily over the bridge when tuning.

Having thus described the invention, what is claimed as new is—

1. In a stringed musical instrument, the combination of the sounding-board, the strings, the bridge for the strings, means for confining the strings to the bridge, and a flexible binder to clamp the strings, substantially as set forth.

2. In a stringed musical instrument, the combination of the sounding-board, the strings, the bridge for the strings, means for confining the strings to the bridge, a binder composed of elements adapted to be twisted together to clamp the strings, and a tension-block applied to the binder for twisting the strands thereof, substantially as described.

3. In a stringed musical instrument, the combination with the strings, of a rest having spaced contacts for the strings and having the edge portions projected beyond the contacts and outwardly sloped, and means for confining the strings upon the rest and exerting a maximum pressure thereon opposite the said contacts, substantially as specified.

4. In a stringed musical instrument, the combination of the strings, a rest therefor having the side adjacent to the strings of synclinal formation and having opposite edge portions outwardly sloped and intersecting the planes of the synclinal side to form contact-points for the strings, and means for confining the strings upon the rest and exerting a maximum pressure thereon opposite the said contact-points, substantially as set forth.

5. In stringed musical instruments, the combination of a sounding-board, the strings, a support between the strings and sounding-board, a cap, a binder for confining the parts composed of a series of strands, and tension-blocks applied to the end portions of the binder to admit of twisting the elements thereof for clamping the parts, substantially as set forth.

6. In a stringed musical instrument, the combination of the strings, the sounding-board, a support for the strings, a cap, a binder for the parts composed of a series of strands, and a tension-block applied to the end portions of the binder, the latter passing through an open-

ing of the block and having the end portion looped around the block to embrace the same, substantially as set forth.

7. In a stringed musical instrument, the combination of the strings, the sounding-board, a support for the strings, a cap, a binder for the parts composed of a series of strands, and a tension-block having an opening and a groove in the bearing side, the end portion of the binder being passed through the opening of

the tension-block and passed around the latter and seated in said groove, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

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Witnesses:

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GENEVIEVE MATTHEWS.