No. 744,105. PATENTED NOV. 17, 1903.

J. A. RATH.

HARP.

APPLICATION FILED MAY 13, 1903.

NO MODEL.

Fig. 1.

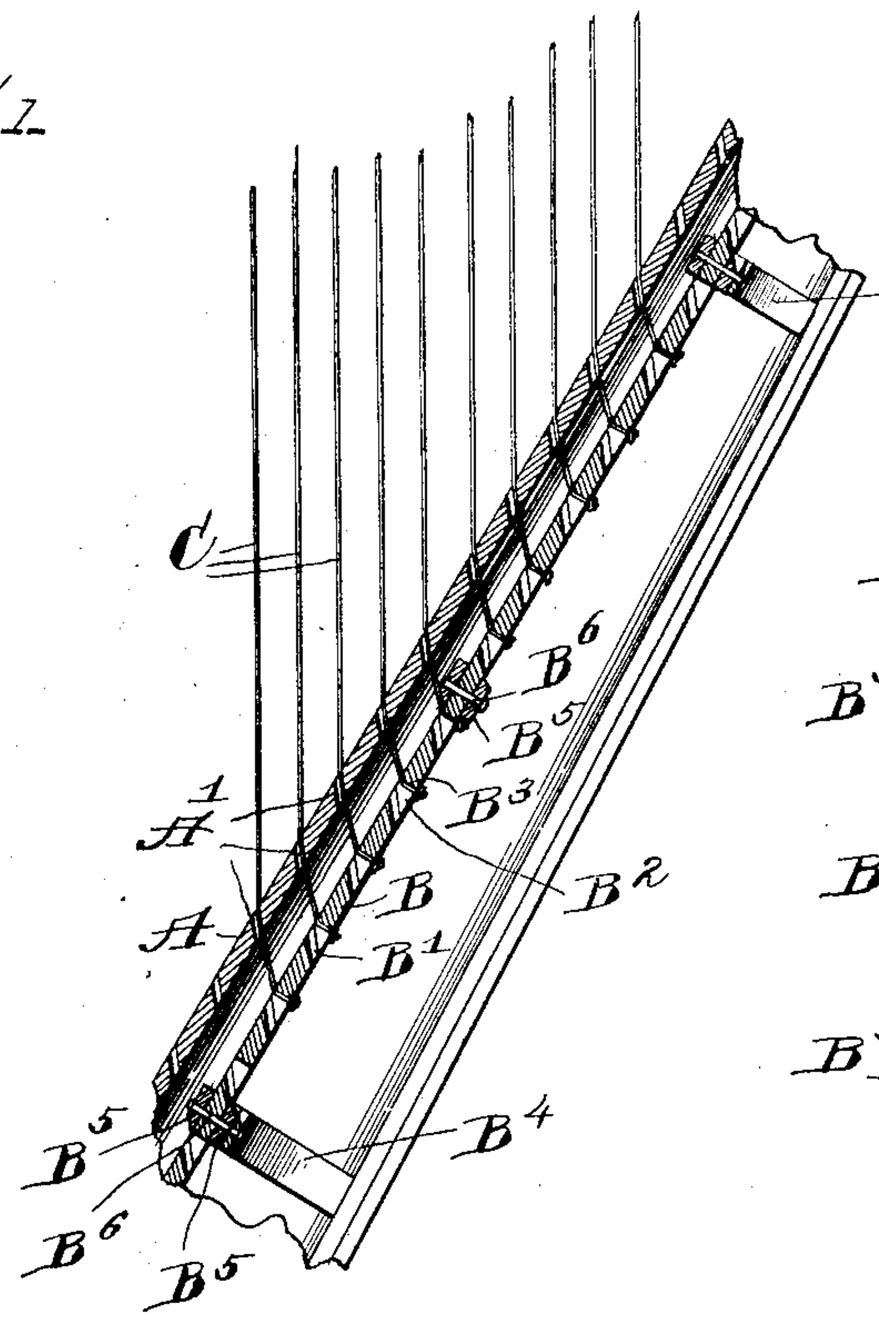


Fig. 2.

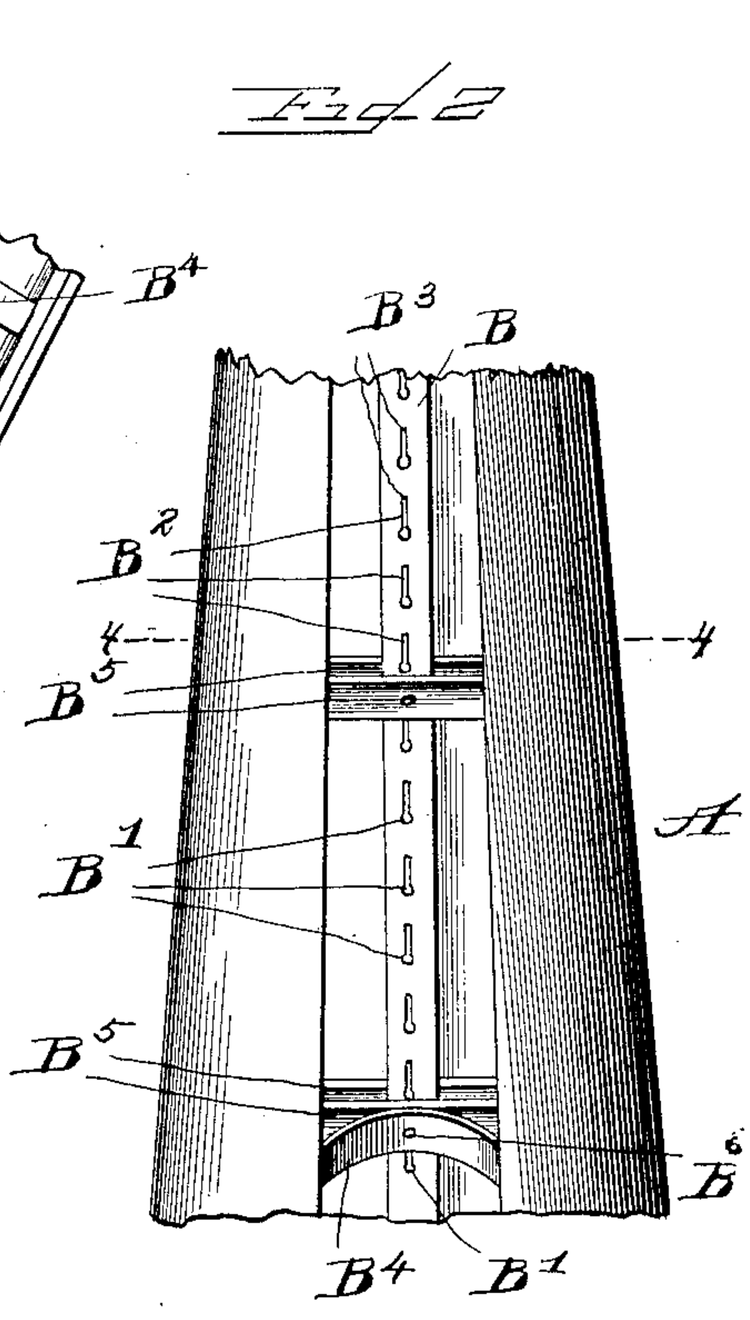


Fig. 3.

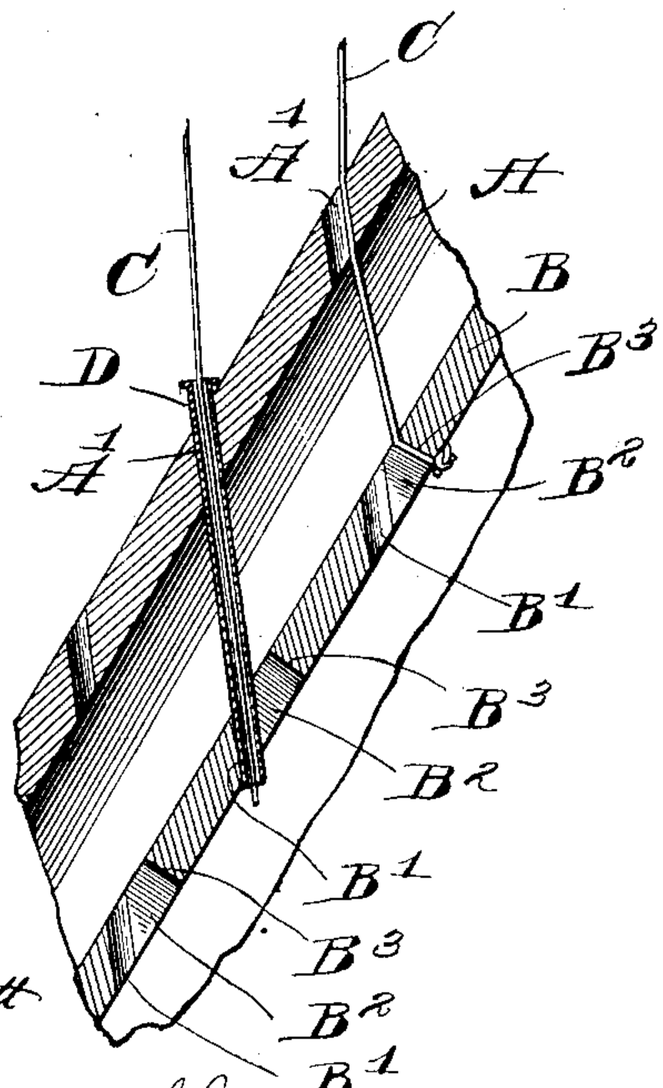
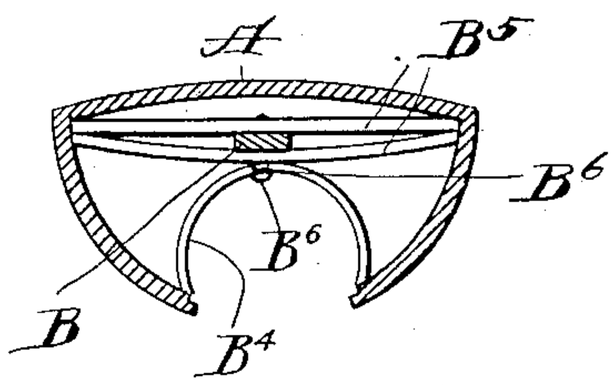


Fig. 4.



Witnesses.

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No. 744,105. Patented November 17, 1903.

UNITED STATES PATENT OFFICE.

JOHN A. RATH, OF JACKSON, MICHIGAN.

HARP.

SPECIFICATION forming part of Letters Patent No. 744,105, dated November 17, 1903.

Application filed May 13, 1903. Serial No 156,879. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. RATH, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Harps, of which the following is a specification.

In harps as heretofore made the lower ends of the strings of the instrument are secured to the sounding-board, and the necessarily high tension of the strings subjects the sounding-board to great strain, which strain after the harp has been in use a short time distorts the sounding-board, causing it to bend upward along the line of attachment of the strings. When this occurs, the triangular shape of the instrument and the position of the strings in their relation to the sharping device are changed, the scale is no longer exact, and the sounding-board begins to crack and separate in places and oftentimes is pulled out altogether, destroying that portion of the instrument.

One of the objects of this invention is the production of a harp wherein the great tension of the strings will be borne by a bridge supported within the harp-frame independently of the sounding-board, said strings passing over and contacting said sounding-board, so as to retain all the desirable influence of said board on the purity and quality of the musical tones produced.

In a harp embodying the features of my invention the strain of the strings upon the sounding-board tends to press the board downward, wherefore the said board has been made "crowning" along the line of bearing of the strings, and the bridge for a similar reason has been "bowed" downward along the line of the points of attachment thereto of the strings.

A further object of the invention is the production of an improved means of securing the ends of the strings to the bridge.

The invention also relates to the general improvements in harp construction to be more particularly pointed out hereinafter.

In the accompanying drawings, Figure 1 is a vertical sectional view through a harp, showing in detail the sounding-board, the bridge, and a number of strings. Fig. 2 is a rear elevation, also in detail, showing the under side of the bridge. Fig. 3 is an enlarged sectional detail taken on the same plane as Fig. 1 and showing the string-directing tube in position in coinciding openings in the sounding-board and the bridge. Fig. 4 is a transverse sectional view through the sounding-board and the bridge, taken on dotted line 4 4 of Fig. 2.

In the construction of a harp embodying the features of my invention I provide the usual harp-frame, (not shown,) supporting thereon in any suitable manner the sounding-board A and below said sounding-board place the bridge B, to which bridge are secured, in a manner to be hereinafter described, the lower ends of the strings C. The sounding-board A is provided with the usual openings A′ for the passage of the strings C, and coincident with said openings A′ are similar openings B′ in the bridge B. The openings B′ are "keyholed" by providing an elongated opening B^2, communicating with each of said openings B′ and extending upwardly therefrom. This elongated opening B^2 has an end wall B^3, extending at a right angle to the upper face of the bridge B. The bridge B is supported at intervals upon the bows B^4, being held firmly between the cross-bars B^5 by means of the rivets B^6 extending through suitable coinciding openings in the bridge bows and cross-bars.

D refers to a tube intended to be slipped into coinciding openings A′ and B′ in the sounding-board and the bridge, through which tube when in this position the lower end of one of the strings C is pushed, the tube directing the string into the proper opening in the bridge B. As soon as the string projects through the lower end of the tube, and consequently through the opening B′ in the bridge, a knot is formed in the end of said string and the end of the string drawn upward in the elongated opening B^2 against the upper wall B^3 of said opening. The tube is slipped off from the free end of the string and said free upper end of the string secured to the tightening device (not shown) upon the neck of the harp. It will be noticed that coinciding openings A′ and B′ in the sounding-board and the bridge, respectively, are not in line with the upper end of the string that passes through said holes. The purpose

of this is to permit the string to bear upon the sounding-board and communicate its vibrations to said board.

It is apparent that many slight changes might be resorted to in the embodiment of this invention without departing from the spirit and scope thereof, wherefore I desire to have it understood that I do not limit myself to the precise details herein shown and described.

I claim as my invention—

1. A harp having a sounding-board crowning along its center line, and a bridge supported independently of said sounding-board.

2. A harp having a sounding-board provided with a series of string-openings, and being crowning in cross-section along the line of said openings; and a bridge supported independently of said sounding-board.

3. As a new article of manufacture, a harp having a sounding-board, a bridge, and supports for said bridge, the sounding-board and the supports for the bridge being arched away from each other.

4. A harp having a sounding-board provided with a series of string-openings and being crowning in cross-section along the line of said openings; a plurality of strings; a bridge supported independently of said sounding-board; and means for securing said strings to said bridge.

5. A harp having a sounding-board and a bridge, cross-bars for supporting said bridge, bows for supporting said cross-bars, and means for securing the bridge, bows and cross-bars together.

6. A harp having a sounding-board, a bridge, cross-bars supporting said bridge below said sounding-board, and a plurality of strings extending from said bridge through said sounding-board, the tension upon said strings tending to press said sounding-board toward said bridge.

7. A harp having a sounding-board crowning along its center line, a bridge, cross-bars supporting said bridge below said sounding-board, and a plurality of strings extending from said bridge through said sounding-board, the tension upon said strings tending to press said board toward said bridge.

8. A harp having a sounding-board, a bridge, supports for said bridge, and a plurality of strings extending from said bridge through said sounding-board, the tension upon said strings tending to press said sounding-board toward said bridge, the sounding-board and the supports for the bridge being arched away from each other.

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Witnesses:
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