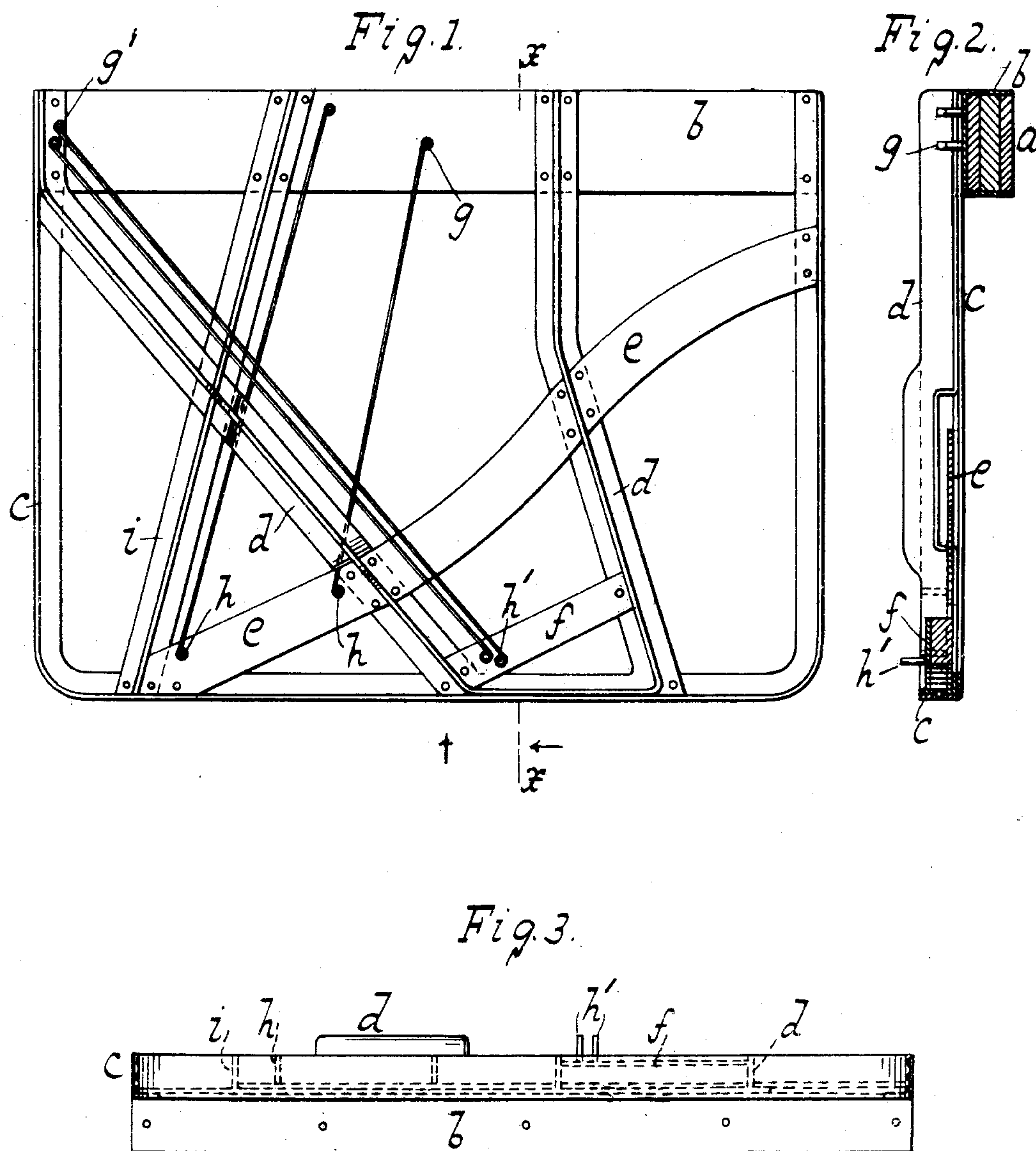


F. DENNINGER.  
 STRING SUPPORT FOR PIANOS.  
 APPLICATION FILED OCT. 13, 1904.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

FRANK DENNINGER, OF NEW YORK, N. Y.

## STRING-SUPPORT FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 792,503, dated June 13, 1905.

Application filed October 13, 1904. Serial No. 228,374.

*To all whom it may concern:*

Be it known that I, FRANK DENNINGER, a citizen of the United States, residing in Bronx borough, city and State of New York, have  
5 invented new and useful Improvements in String-Supports for Pianos, of which the following is a specification.

This invention relates to improvements in string-supports for pianos; and the invention  
10 resides in the details of construction set forth in the following specification and claims and illustrated in the annexed drawings, in which—

Figure 1 is a face view of a string-support embodying the invention. Fig. 2 is a section  
15 on the line *xx*, Fig. 1. Fig. 3 is an edge view of the support looking across the same in the direction of the wrest-plank.

In the drawings is shown a wrest-plank *a*, having on three sides thereof a metallic covering or reinforcement *b*, as clearly shown by  
20 Fig. 2. A marginal closing means in the form of a bar *c* is bent from angle metal into substantially U-shaped form and terminally attached to the opposite ends of the wrest-  
25 plank *a*, the long side member of the said bar being parallel with the inner adjacent side of the wrest-plank. Terminally connected to the wrest-plank and a part of the frame *c* is an irregular U-shaped inner bar *d*, the mem-  
30 bers of this inner bar being disposed in such manner with respect to each other as to practically serve their intended purpose and cooperate with the remaining parts of the support. Both the bar *c* and the inner bar *d* are  
35 made of angle bendable metal to permit them to be readily shaped and overcome the disadvantages incident to cast forms, and by the arrangement of the said outer and inner bars with respect to the wrest-plank, as set forth,  
40 the latter is included as a part of the organization of the string-support.

A hitch-pin plate is shown at *e* and constructed from suitable flat metal, this plate being preferably in sections and secured to  
45 the flanges of the outer bar *c* and inner bar *d*. This hitch-pin plate is disposed diagonally with respect to the outer bar and shaped in such manner as to have the parts thereof arranged as desired with respect to the remain-  
50 ing features of the support. An auxiliary

hitch-pin plate *f* is also shown attached to the members of the inner bar *d* to provide means for attaching bass-strings in an overstrung construction.

Tuning-pins *g* and *g'* are applied to the  
55 wrest-plank, and hitch-pins are shown at *h* and *h'* on the hitch-pin plates *e* and *f*.

The letter *i* designates an oblique brace or braces between the long side of the outer bar *c* and the wrest-plank and intersecting one of  
60 the members of the inner bar *d*.

The hitch-pin plates are at such height or level as to bring the strings in such line of strain as to secure a central or balanced pull. By having an even-poised pull the tendency  
65 of the strain on the strings to warp or bend the support is avoided.

All the bendable parts of the support can be shaped as desired by suitably heating the same or by other suitable means, and no cast-  
70 ing is required, thus saving time and cost, and a construction is obtained which is stronger and lighter than cast-metal devices.

The outer bar *c* could be omitted if the piano has a back of wood or suitable material  
75 to cooperate therewith; but the inner bar *d* will be required. Some of the parts could be arched or bridge-shaped, if required, for the passage of the strings, this contour being readily obtainable by heating or otherwise  
80 treating the angle or T iron used in the construction of such parts. Furthermore, the wrest-plank might be made of wood or metal, as called for.

What I claim as my invention, and desire to  
85 secure by Letters Patent, is—

1. A string-support of the class set forth, comprising a wrest-plank, a U-shaped bar bent into form from angle-iron and terminally se-  
90 cured to the opposite extremities of the wrest-plank, and means held by the flange portion of the bar for attachment of string-terminals.

2. A string-support of the class set forth, including a wrest-plank having a U-shaped bar constructed from angle-iron and termi-  
95 nally attached to the opposite ends of the said wrest-plank, a metal cover or reinforce surrounding the wrest-plank on three of its sides, and means held by the bar for the attachment of string-terminals.



3. A string-support of the class set forth including a wrest-plank, an outer U-shaped bar terminally attached to the ends of the wrest-plank, and an inner irregularly-U-shaped bar  
5 also terminally secured to the wrest-plank and at an intermediate point of the outer bar, both bars having means for attaching string-terminals thereto.

4. A string-support of the class set forth,  
10 comprising a wrest-plank, having an outer bar of U-shaped form and terminally secured thereto, and an inner approximately U-shaped bar also terminally secured to the wrest-plank, and intermediately to the outer bar, both bars  
15 being made of angle-iron and presenting supporting-flanges for the parts with which they cooperate.

5. A string-support comprising a wrest-plank, an outer U-shaped bar terminally attached to the wrest-plank, an inner irregularly-U-shaped bar also terminally attached to the wrest-plank, and an auxiliary brace between a part of the outer bar and the wrest-plank, the said bars and the brace being made of angle-iron and presenting flanges as supporting  
25 means for the parts with which they cooperate.

6. A string-support having a wrest-plank, an outer bar terminally secured to the plank,  
30 an auxiliary brace between a part of the outer bar and the wrest-plank, an inner bar also terminally connected to the wrest-plank, said bars and brace being made of angle-iron, the outer and inner bars being U-shaped to practically cooperate with the remaining parts of  
35 the support, and a hitch-pin plate extending obliquely across the support and connected to the inner and outer bars.

7. A string-support comprising a U-shaped  
40 outer bar of angle-iron, an inner bar also of angle-iron, a hitch-pin plate of flat metal made in sections and secured to the flanges of the

bars, a wrest-plank, and means for securing strings in operative position to said parts.

8. A string-support comprising a U-shaped  
45 bar of angle-iron, a hitch-pin plate of flat metal secured to the flange of the bar, a hitch-pin plate for bass-strings also secured to said flange, and other means for attaching the strings.  
50

9. A string-support comprising a bent bar of angle-iron, a hitch-pin plate of flat metal made in sections and secured to the flange of the bar, and means for holding the strings in position with respect to said parts.  
55

10. A string-support comprising a wrest-plank, outer and inner U-shaped bars secured to the wrest-plank and made of angle-iron, a hitch-pin plate secured to the flanges of the bars, and a second hitch-pin plate for bass or  
60 over stringing connected to the inner bar.

11. A string-support comprising a wrest-plank, an outer U-shaped angle-iron bar secured to the wrest-plank, an inner angle-iron bar and brace both within the outer bar and  
65 attached to the latter and the wrest-plank, and flat hitch-pin plates on the flanges of the bars and brace, one of the hitch-pin plates being adapted for bass or over stringing.

12. A string-support of the class set forth,  
70 comprising a wrest-plank, an outer bar of U-shaped form projecting from one side of the wrest-plank and terminally attached to the latter, an inner irregular U-shaped bar attached to the outer bar and the wrest-plank,  
75 and hitch-pin plates connected to said parts.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANK DENNINGER.

Witnesses:

W. C. HAUFF,

EDWARD WIESNER.