

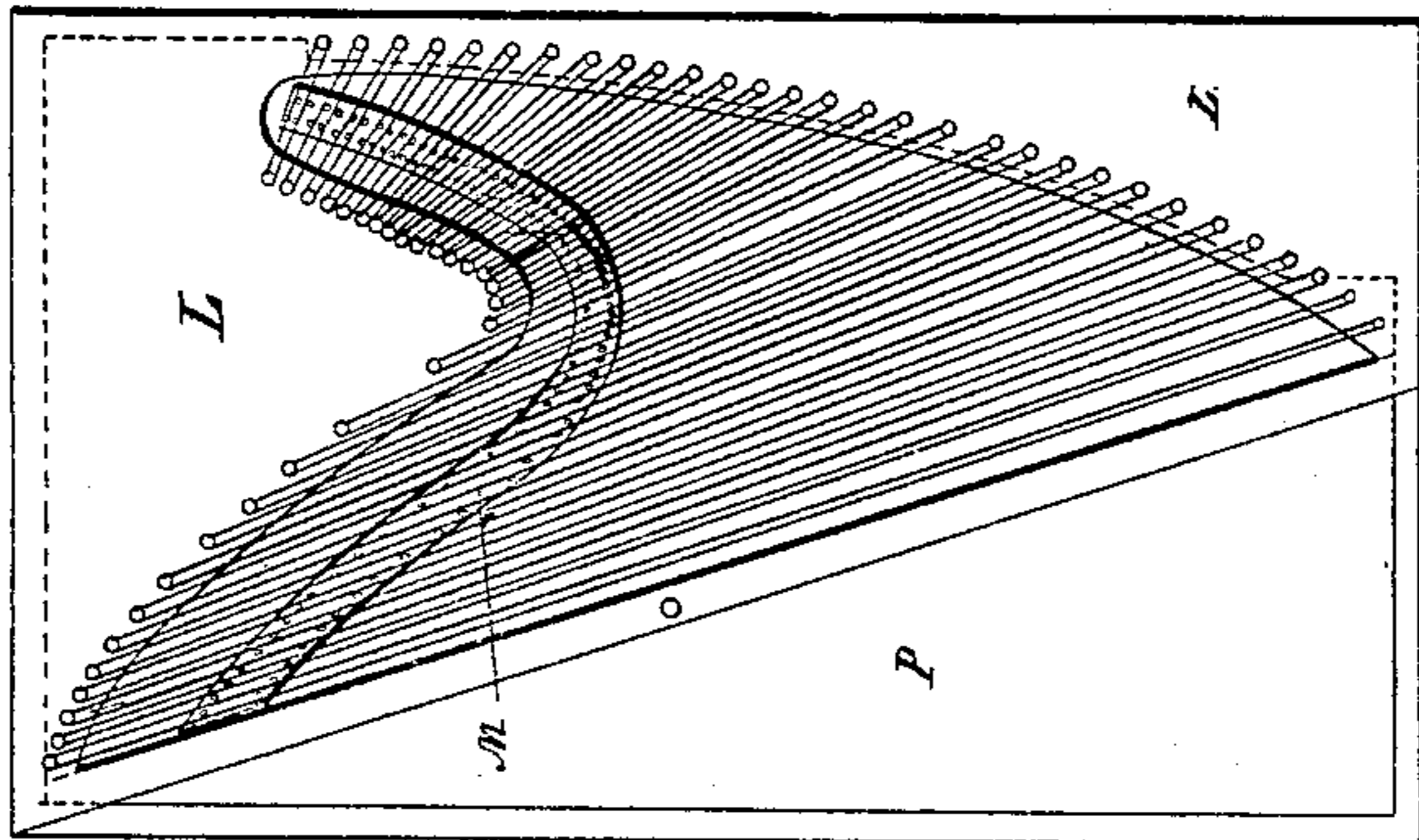
*J. G. Kunze,*

*Piano,*

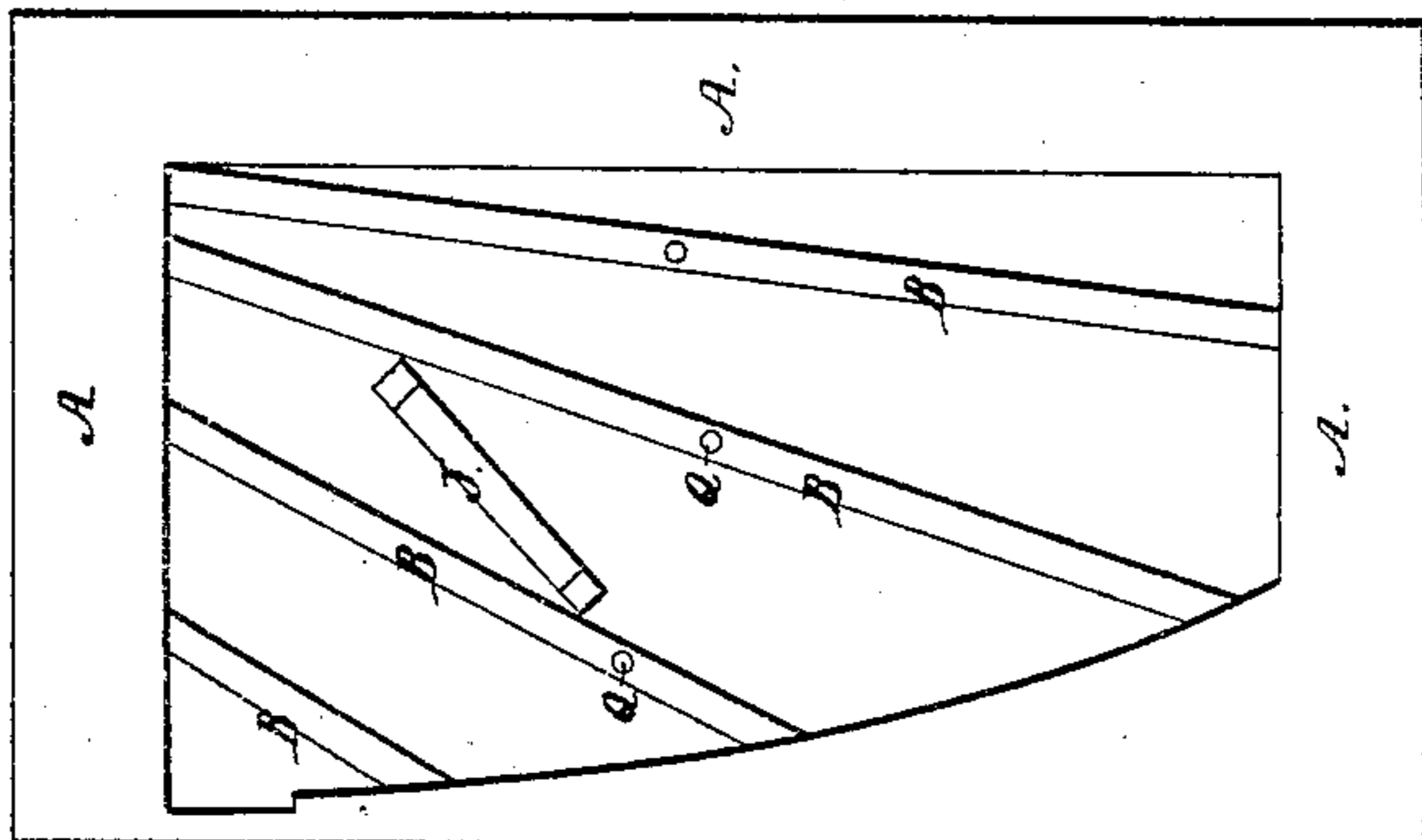
*N<sup>o</sup> 26,503.*

*Patented Dec. 20, 1859.*

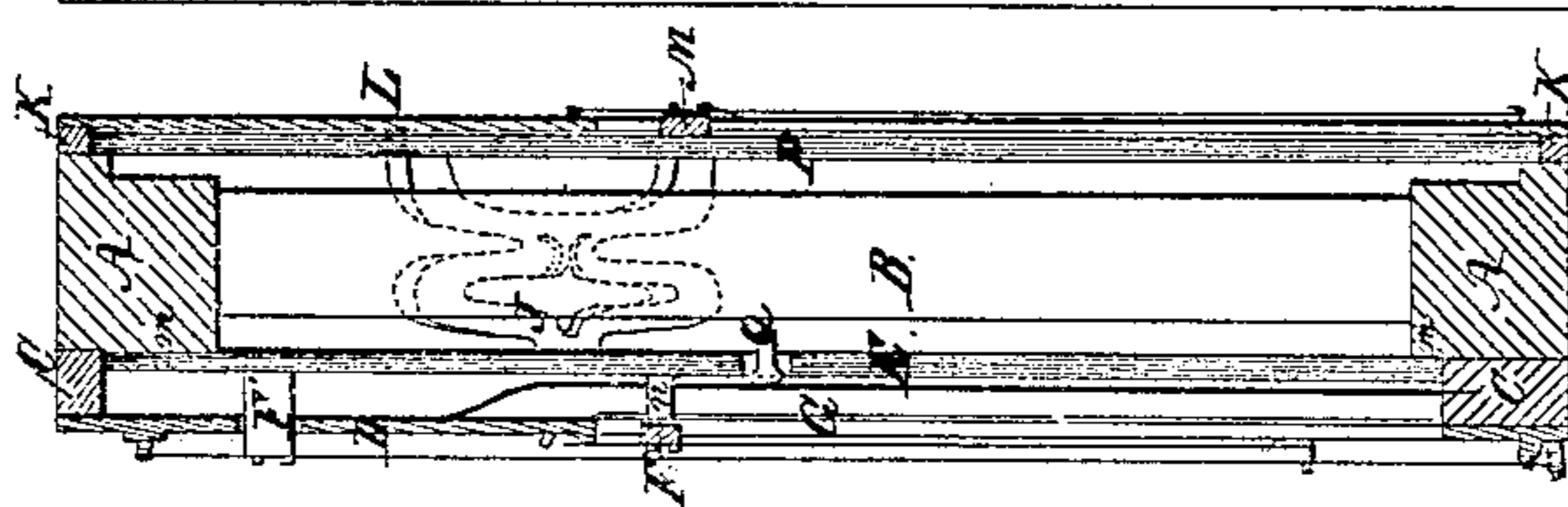
*Fig. 4.*



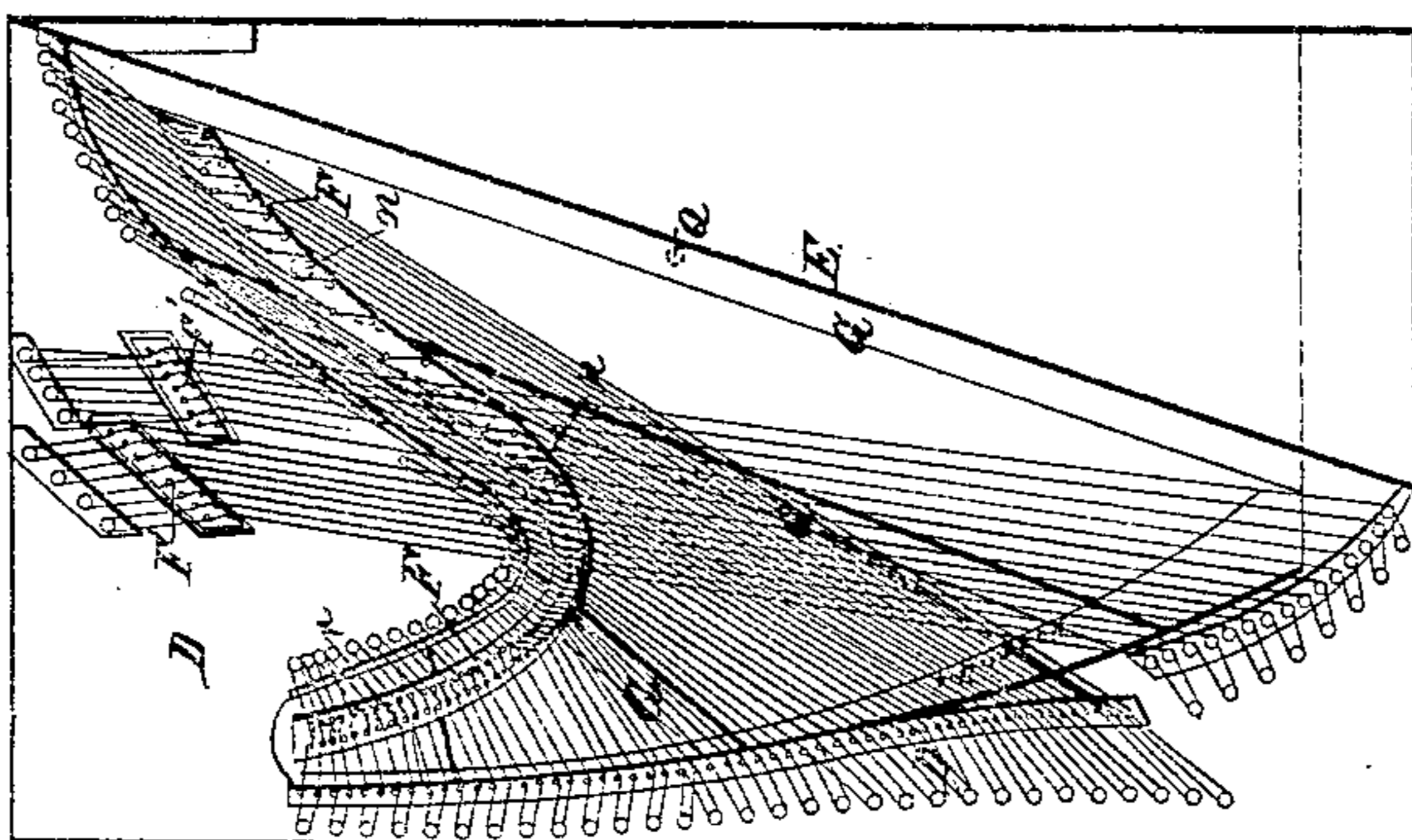
*Fig. 3.*



*Fig. 2.*



*Fig. 1.*



*Witnesses:*

*W. E. Lueder*

*Louis Bleyer*

*Inventor:*

*J. G. Kunze*

# UNITED STATES PATENT OFFICE.

JOHN G. KUNZE, OF NEW YORK, N. Y.

## PIANOFORTE.

Specification of Letters Patent No. 26,503, dated December 20, 1859.

*To all whom it may concern:*

Be it known that I, JOHN G. KUNZE, of New York, in the county and State of New York, have invented a new and useful Improvement in Pianofortes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Figure I represents a top view of my improved piano forte with the action removed. Fig. II shows a longitudinal section. Fig. III a horizontal section and Fig. IV a bottom view of the same.

The nature of my invention consists in the construction of that description of pianofortes in which the action or mechanism strikes the strings from above or act downward, and is so arranged that through said construction a greater extent and surface of sound-board and consequently a stronger and fuller sound is obtained, and, secondly, in the application of a second or lower sound-board situated on the bottom of the pianoforte, and covered with strings, similar to the strings on the top and acted on by the action, for the purpose of producing thereby more free and prolonged tones in all parts.

In the accompanying drawings A represents the side frame or box of the casing, provided with strong braces B and so arranged as to counteract the strain produced by the tension of the strings. The depth of the braces B is a little less than the depth of the frame A to prevent the sound-boards coming in contact with the same. On the top of the frame, A, the wrest-plank, C, is firmly secured, upon which the metallic hitchplate D is fastened. The wrest-plank, C, does not cover the whole surface of the frame, A, but leaves a space (m) (Fig. II) all around on the inner side, on which the top or main sound-board E is fastened, closing up the whole top side of the case.

The metal hitch plate D is constructed in the usual manner, and the strings are attached to the same in a double row, or as it is usually called overstrung as represented in red lines, Fig. I. By this arrangement of a curved hammerline the surface of the sound-board is considerably increased, and produces therefore more fullness and strength of sound.

F is the sounding board bridge for the

lower row of strings. The same is not fastened directly upon the sound-board in one solid piece as usual, but is attached to the same through wooden columns or distance pieces, n, leaving in several places an open space between the bridge F and the sound-board E for the diagonal braces, G, to pass, which strengthen the hitch-plate D, without said braces interfering in the free communication of the sound from the strings with the sound-board.

F' F' are the bridges for the upper row of strings attached to the sound-board E and passing through openings in the hitch-plate D.

To the underside of the frame A a sound-board P, similar to the upper sound-board E, is fastened, inclosing thereby the whole case so as to form a close box of which the two sounding boards E and P act as drum-fells. To assist the communication of the sound and the vibration from the upper sounding board to the lower one I introduce a flexible or elastic bridge, J, between both sounding boards and connected to the same, near the position of the treble strings, and through which said bridge the least vibration of the upper sounding board is communicated to the lower one and consequently the fullness and strength of those tones increased.

K is a wrest-plank fastened to the underside of the frame A, to which a metallic hitch-plate L is secured, similar to the upper or main hitch-plate D, and likewise covered with strings, corresponding in size and number with the strings on the top plate D, but which may be arranged side by side in one row.

M is the sounding board bridge for the strings on the bottom of the piano-forte. The strings are attached to the lower hitch plate L and across the bridge M in the usual manner and arranged so that the same may be tuned if desired. The braces G of the metal hitch plate D, and the wooden braces B in the inside of the box and between the frame A are connected together by bolts or pins Q passing through small openings in the sound-board.

The full clear sound of an instrument depends in a great measure upon the extent of surface of the sounding board, and as above described both sounding boards, with the exception of the small holes through

which the pins Q pass, form in their whole extent an unbroken surface, covering the whole of the top and bottom of the casing, of which the frame A forms the sides, and as said sounding boards are connected together through the elastic bridge, J, the least vibration of the upper sounding board E is communicated to the lower sounding board P and to the strings attached to the lower hitch-plate L at the underside of the piano-forte, which acting all together produce a fuller and more perfect sound than has heretofore been obtained.

Through the attachment of the bridge F with the sounding board E by means of columns or distance pieces, *n*, a greater vibration in the surface of the sounding board E is permitted principally in that part of the sounding board which is under the treble strings producing a fuller and more perfect tone of the notes sounded by those strings, and allow at the same time the introduction of any number of braces, G, between the strings and the sounding board for the purpose of strengthening the metallic hitch-plate D.

Through the communication of the braces, G, with the braces B in the inside of the box or case the vibration and sound of the braces, G, as well as of the hitch-plate D is communicated to the wooden frame work, and helps to increase the sound of the instrument.

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

1. Supporting the bridge F on columns or distance pieces, *n*, to admit any number of braces for the hitch-plate D between the strings and the top of the sounding board, and likewise to admit of a greater vibration of the sounding board, in the manner and for the purpose substantially as described.

2. I claim the arrangement of additional braces G, to the hitch-plate D, situated between the strings and the top of the sounding board and connecting said braces with the braces B or the wooden truss work situated between the frame, A, in the manner and for the purpose set forth.

3. I claim the application of a bottom sounding board, P, when in connection with a lower metallic frame or hitchplate L covered with strings, in the manner and for the purpose substantially as described.

4. I claim the elastic spring brace, J, to connect the two sounding boards together for the purpose substantially as described.

5. I claim the arrangement of the strings in two rows and the use of a curved hammerline in piano fortes where the action strikes the strings from above downward as set forth.

JOHN G. KUNZE.

Witnesses:

HENRY E. ROEDER,  
LOUIS BLEGERT.