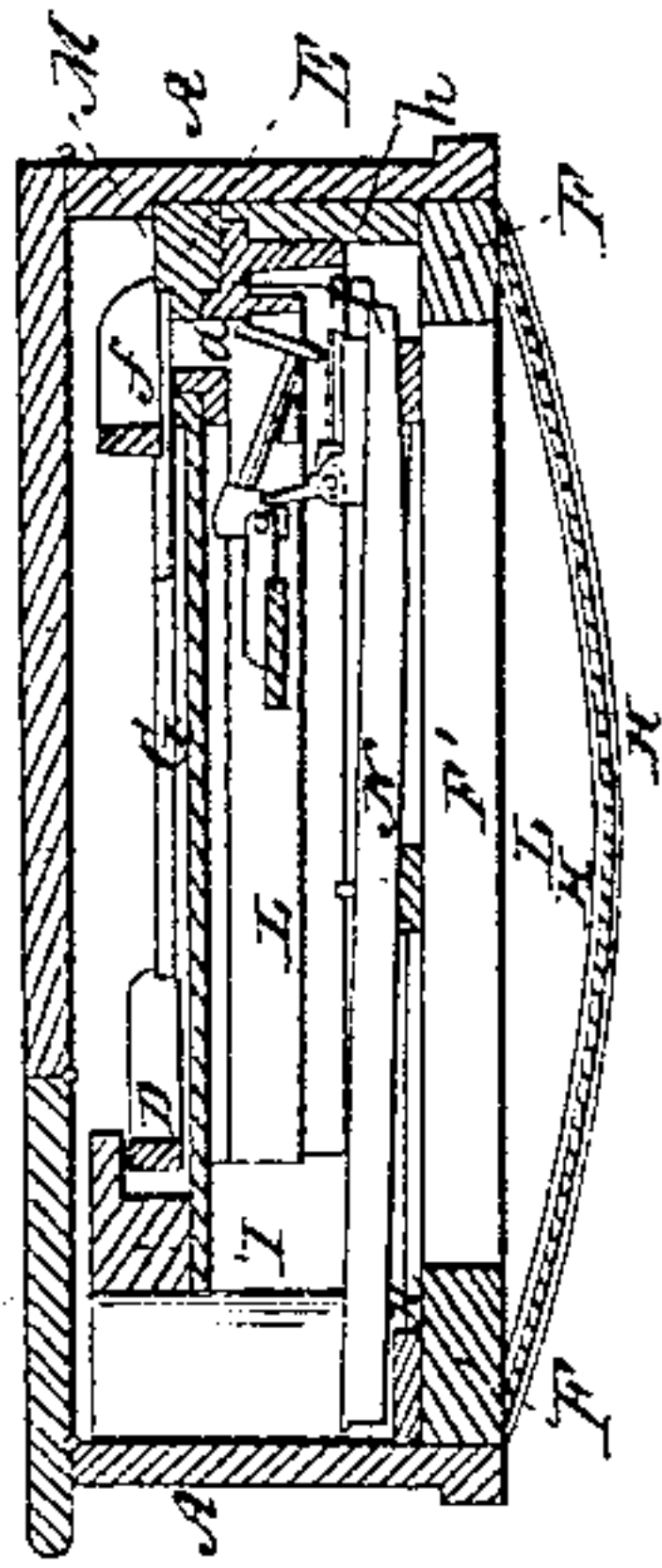


*S. B. Driggs,*  
*Piano Sounding Board,*

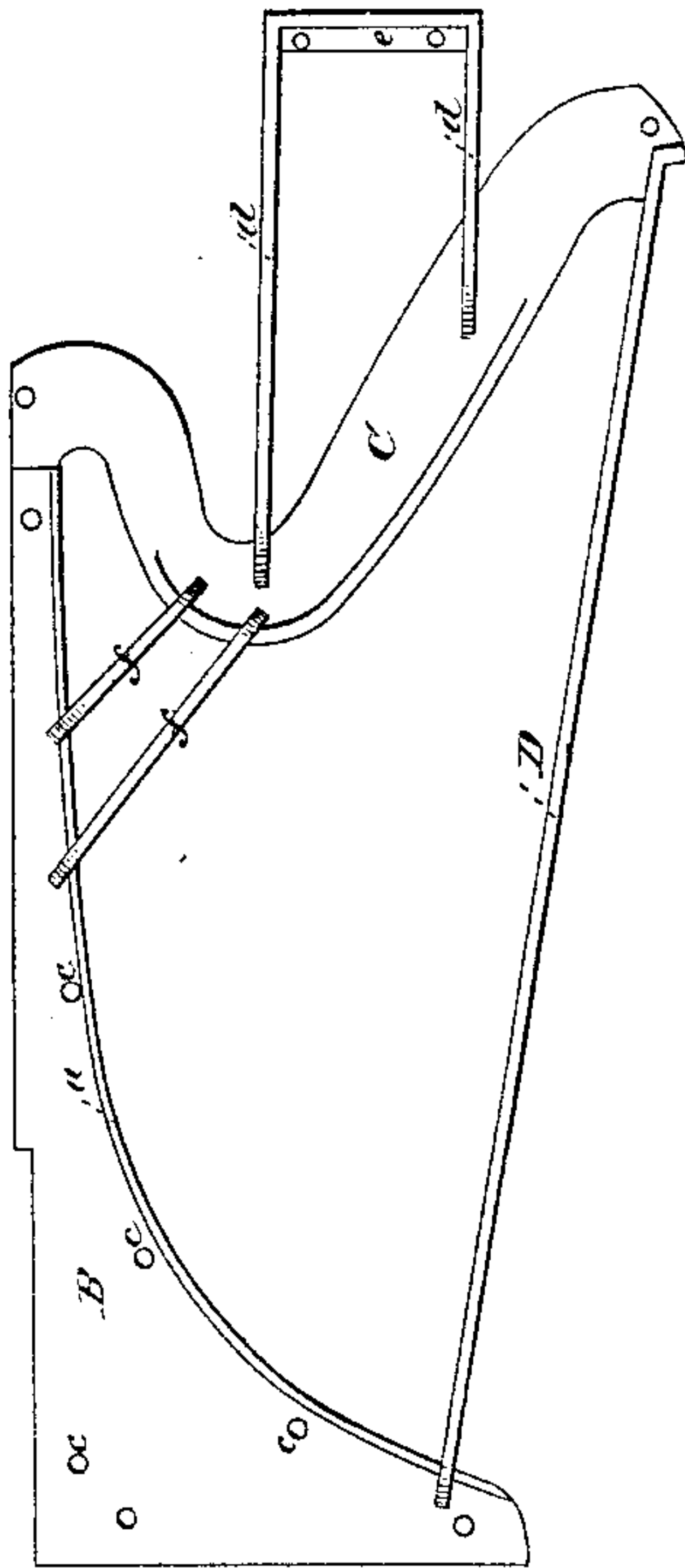
*No 19,081,*

*Patented Jan. 12, 1858.*

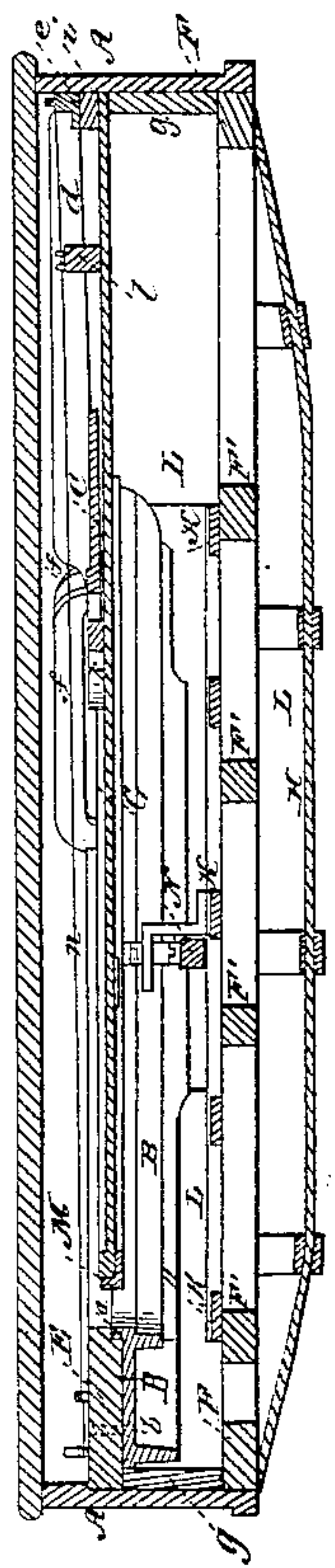
*Fig. 2.*



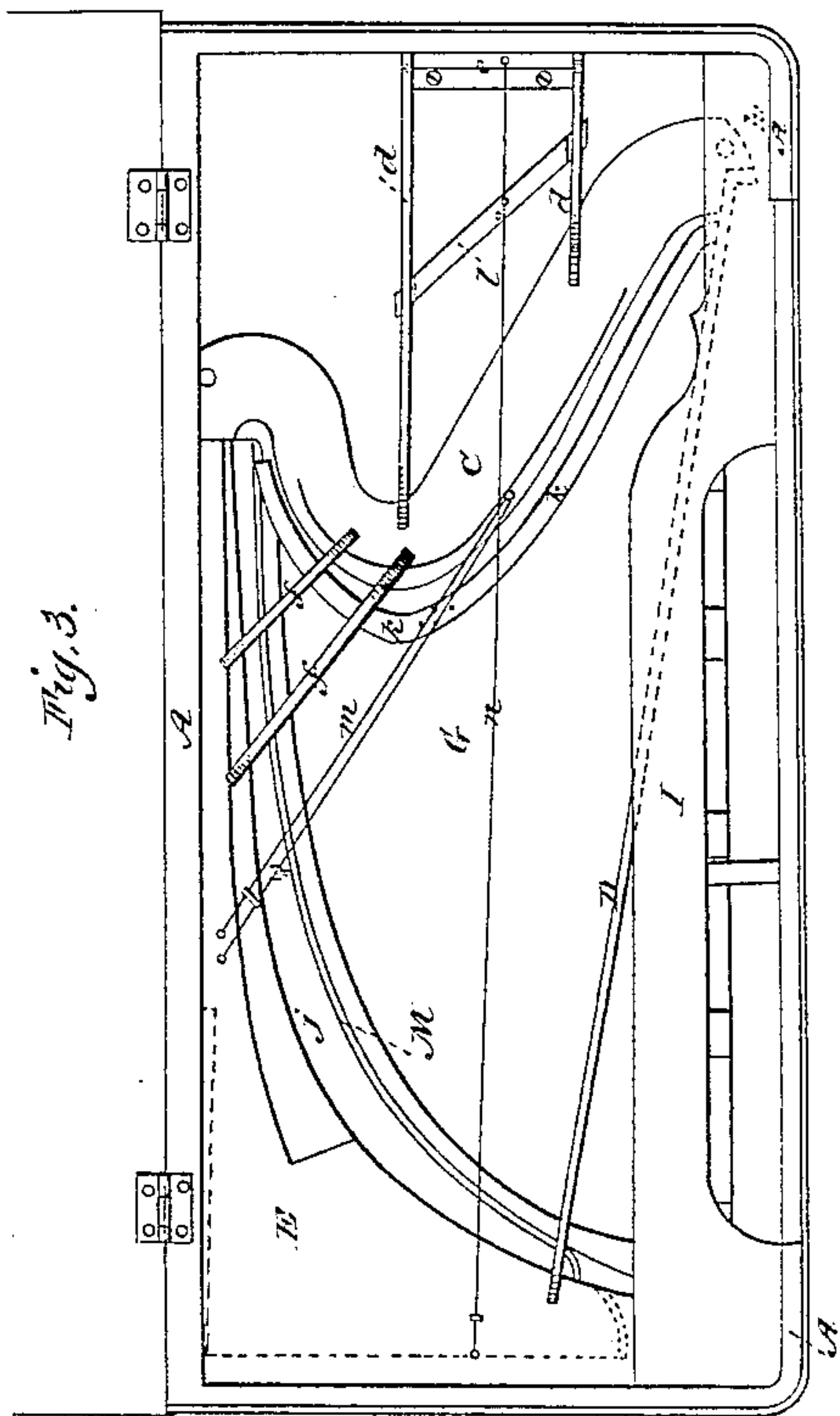
*Fig. 4.*



*Fig. 1.*



*Fig. 3.*





# UNITED STATES PATENT OFFICE.

SPENCER B. DRIGGS, OF NEW YORK, N. Y.

## PIANOFORTE.

Specification of Letters Patent No. 19,081, dated January 12, 1858.

*To all whom it may concern:*

Be it known that I, SPENCER B. DRIGGS, of the city, 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, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal vertical section of a "square" pianoforte, constructed according to my invention. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a plan of the interior of the instrument. Fig. 4 is a plan of the metallic frame by which the tension of the strings is sustained.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in so applying a second sound board to a pianoforte, in addition to the usual sound board on which the strings rest, that the said additional sound board shall constitute a bottom and the only bottom, to the case, and one which, so far from interfering with and deadening the vibration of the usual sound board like the heavy bottom generally used, shall assist such vibration and increase the power of the instrument and the volume of its tone, and that the whole interior of the instrument below the usual sound board shall constitute a sound chamber of similar character to the interior of a violin and of great capacity, containing only the playing action and such supports as may be necessary to sustain the action and the lyre.

In carrying out my invention, I employ a frame B C D, of cast iron, to support and sustain the whole tension of the strings independently of the case A A, of the instrument. This metallic frame, of which a plan view is given in Fig. 4, is cast all in one piece, and may be considered as composed of three principal portions, viz., the portion B, which is of a form corresponding with the wrest plank E, and upon the top of which the wrest plank is to be secured, the portion C, which is like the hitch plate of an ordinary pianoforte, except that it does not extend all the way to the side of the case, and the brace D, which is like the iron brace commonly employed in "square" pianofortes. The portion B, of this frame has cast upon it an upwardly projecting lip *a, a*, against which the wrest plank rests and is sustained against the tension of the

strings; and the wrest plank is bolted to the lip by screw bolts *b, b*, (shown in Fig. 1) passing from the underside through holes *c, c*, in the frame, and screwing into the wrest plank. The portion C, has two deep and strong bars *d, d*, standing above it and extending from it in a direction longitudinal to the instrument, and these bars are connected by a piece *e*, running parallel with the side of the case. The parts B and C are stayed together at the back part of C by means of deep and strong braces *f, f*, standing above them and running in directions parallel or nearly so with the strings. The frame and wrest plank thus secured together are supported upon pieces of plank *g, g*, and *h, h*, set up edgewise at the sides and back and part of the front of the instrument, upon an open wooden frame F F, which is of a size to fit within the lower part of the case; the wrest plank, which projects slightly over the side and back of the portion B of the iron frame, resting on the piece *g*, at the left hand end of the instrument and the adjacent piece *h*, at the back, and the right hand end of the iron frame resting partly on a block *i*, on the top of the right hand end-piece *g*, and partly on an upright piece at the left hand end of the key board. The ordinary wooden front brace I, is employed, extending from the front of the wrest plank to the front right hand corner of the framing.

The sound board G, upon which the springs are supported, is made of slightly arched form to give it stiffness without bracing; said arched form being produced by steaming and bending the wood; and it is sustained in this form while in the instrument by gluing it to the right hand side piece *g*, of the framing and the adjacent back piece *h*, and by a flanged metal plate M, which receives that edge which is next the opening *j*, through which the hammers play. This mode of arching and sustaining the arched form of the sound board, by confining it at the edges, enables it to be made very thin and yet sufficiently strong without barring it to such an extent as to deaden its vibration.

K, is the bridge for supporting all of the strings, except those of the lower octave or octaves, on the sound board, said bridge and the strings *m, m*, resting on it having the usual arrangement of the bridge and strings of "square" pianofortes.



V, is the bridge for supporting the strings *n*, of the lower octave or octaves, on the sound board, which strings, for the sake of getting larger and longer strings all through the instrument, I arrange above the other strings and parallel with the front and back of the case, as shown in Figs. 1 and 3.

H, is the second or additional sound board, which constitutes the only bottom of the case, glued to the bottom of the wooden frame F F. This board is made of arched form, to give it the requisite strength without making it too thick or barring it so much as to interfere with its vibration, and it is arranged with its convex side downward. It may be connected with the upper sound board G, by a sound post, but this post (though its use is advantageous in causing the lower sound board G to assist the upper one in its vibration) is not absolutely essential to the employment of the lower sound board.

The chamber L formed below the sound board G, between it and the sound board H, is made of immensely greater capacity than the chamber within the ordinary piano, without increasing the depth of the case, as the thick bottom of the instrument which occupies so much room is dispensed with, and the said chamber contains nothing but the key-frame K, and striking action N, and the cross bars F<sup>1</sup>, F<sup>1</sup>, which are secured to the lower wooden frame F F, for the purpose of supporting the key-frame and the lyre; and this increase of capacity of the chamber is of immense advantage, independently of the advantage to be derived

from the use of the second sound board, as this of itself secures a greater freedom of vibration for the upper sound board. Such an extensive sound chamber has not been obtained by any other arrangement of two sound boards when two have been employed.

The invention is applicable to the "grand" or "upright" piano-forte; the manner of its application only varying from that shown in the drawing as far as is required by the difference in form of those instruments.

I do not claim, generally, the employment of two sound boards in a piano-forte; as I am aware that they have been employed in two different ways, viz., in one mode, both of them having been arranged within or above the bottom of the case; in the other mode, one having been employed in the usual position, and the other below the usual solid bottom of the instrument and connected with the first-named one by a sound post passing through a hole in the solid bottom of the case. But—

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

So applying a second sound board, in addition to the ordinary sound board upon which the strings rest, that such additional sound board shall constitute a bottom and the only bottom to the case, and produce results substantially as herein described.

SPENCER B. DRIGGS.

Witnesses:

W. TUSCH,  
I. W. COMBS.