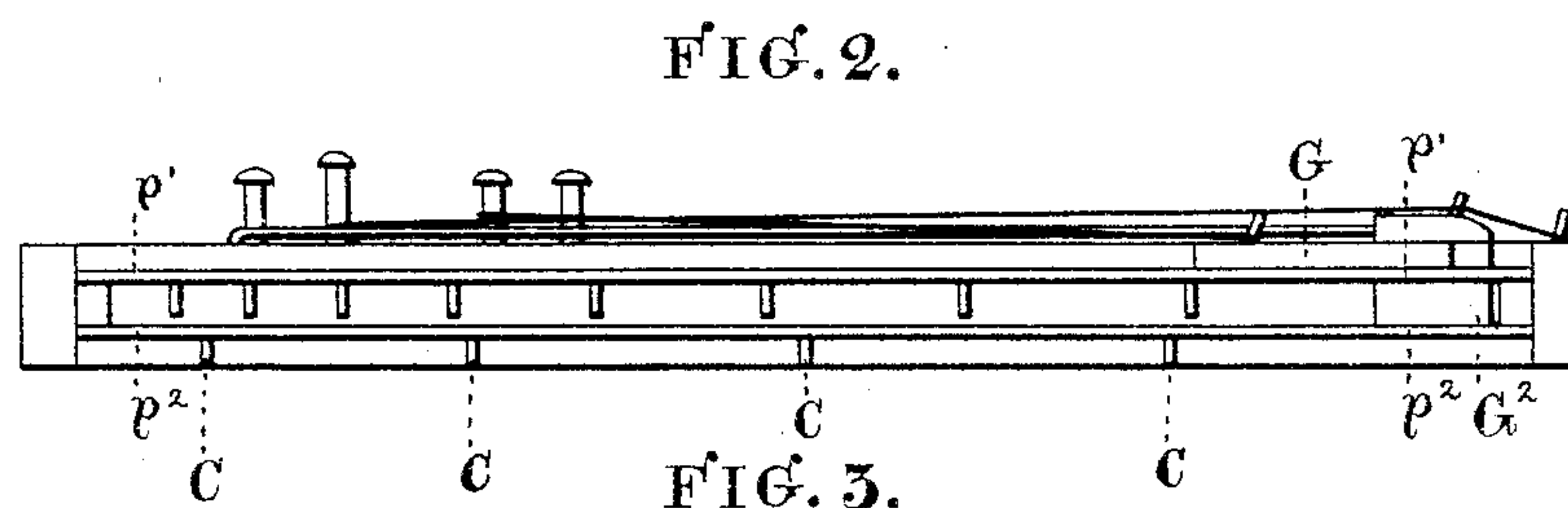
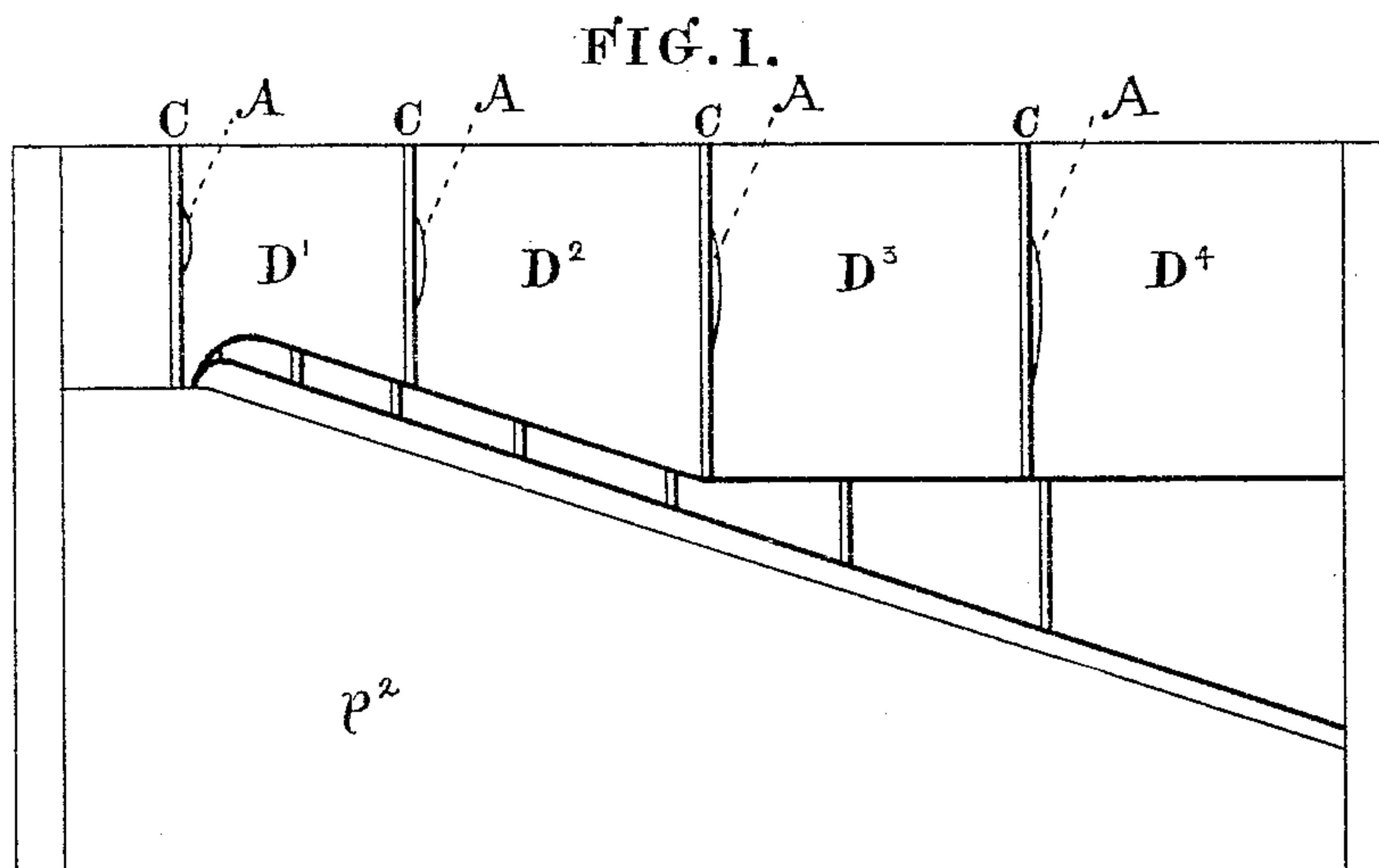
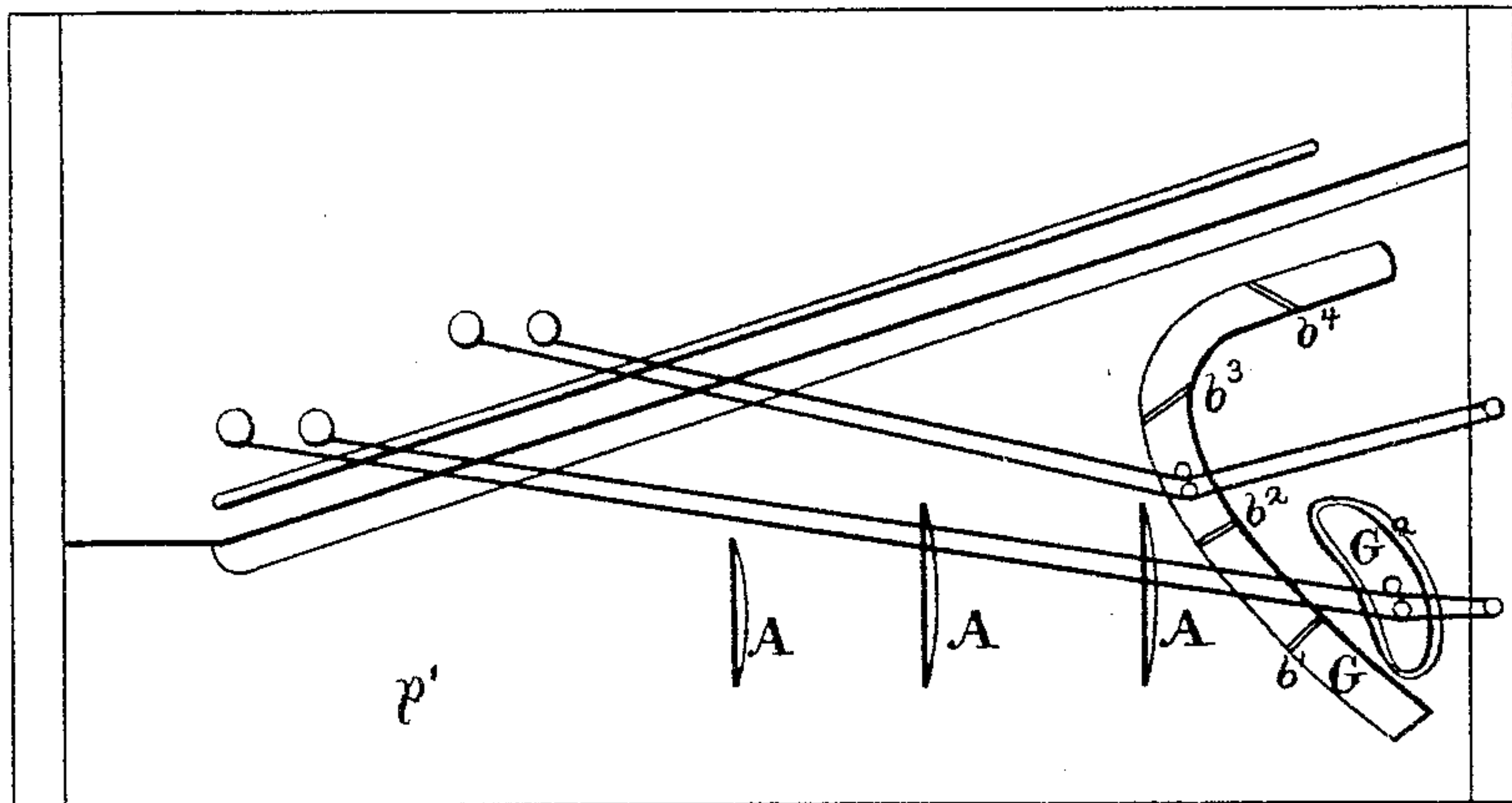


L. CHASE.
Sounding-Board.

No. 218,487.

Patented Aug. 12, 1879.



WITNESSES:

Chas. H. Kimball.

Chas. S. Mooney.

INVENTOR:

Lorenzo Chase,
by his attorney.

W. W. Forbner

UNITED STATES PATENT OFFICE.

LORENZO CHASE, OF PORTLAND, MAINE.

IMPROVEMENT IN SOUNDING-BOARDS.

Specification forming part of Letters Patent No. **218,487**, dated August 12, 1879; application filed March 26, 1879.

To all whom it may concern:

Be it known that I, LORENZO CHASE, of Portland, in the county of Cumberland and State of Maine, have invented a certain new and useful Reverberatory Chromatic Sound-Board; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made a part of this specification, in which—

Figure 1 is a top-plan view of my invention. Fig. 2 is a bottom-plan view of the same. Fig. 3 is a front-edge view of the same.

Same letters show like parts.

My invention relates to those parts of the music-producing mechanism of a piano or other musical instrument which qualify and control the power of the sound produced, and consists in controlling the resonance of particular notes, by the means hereinafter described, to produce the exact kind, quantity, and quality of sound desired from each note or chord, connecting such resonance infallibly with its own proper note or chord, thereby placing a power in the hands of the instrument-maker that he has never before possessed.

My invention consists of the braces C C C C, the slots A A A A, the bridges G and G², said bridges being divided by the transverse cuts b¹, b², b³, and b⁴, and the sound-boards p¹ and p².

The braces C C C C serve, in the first instance, to prevent the sound-board, to which they are attached, from splitting or checking; and, secondly, they divide the sound-board into divisions or sections D¹ D² D³ D⁴, each of which sections has an independent vibration of itself, and is specially representative of a known group of sounds.

The slots A A A A, cut through the sound-board, render the sectional divisions D¹ D² D³ D⁴ more flexible, sensitive, and independently responsive, and they further control the instrument in this, that by enlarging them the space in which they are cut is brought to the required tone.

In the drawings are shown the two bridges G and G², G being attached to the upper sound-board, p¹, and G² passing through an orifice cut in the upper board of a size sufficient to

admit the bridge without there being contact between the upper sound-board and the bridge G², which is attached to the lower sound-board, p², both these bridges (or one, as shown) being divided between the chords by the transverse cuts b¹ b² b³ b⁴, in order to make them more flexible, and to correct the great degree of rigidity which is found to exist in bridges not so divided, and which is highly injurious to the tones of the instrument.

I have discovered that the reverberation of each sound produced by the chord of a piano, or other sound-producing mechanism in a musical instrument, is confined to its own special part of the instrument, and the mechanism herein described is intended to locate, aid, and qualify that reverberation, and to fully control it in every respect.

The manner of using my invention may be described as follows, viz: When the instrument is fully completed, as I have described, in all respects except attaching the braces and cutting the slots in the sound-board, the operator may first attach one of the braces C C C C temporarily at such a point on the sound-board as his judgment and experience may dictate as inclosing the proper area. Then, by sounding the string and the inclosed space together, he will be able to determine whether he will need to inclose more or less space, and move the brace accordingly, remembering that by inclosing more space he will make his resonance lower, and by inclosing less space he can make it higher. Having brought the chord and the surface so inclosed nearly or quite in accord and true relation, he may affix the brace permanently to the sound-board, and then, having preferably left the tone a little sharper than desired, he can correct any sharpness not desired by having the slots A A A A cut beside the braces, the larger slot giving the lower tone.

Those skilled in music and the manufacture and use of musical instruments will readily perceive that the different parts herein described as new, when used together, will produce a new effect—viz., a special response to each sound produced by the sound-producing mechanism of an instrument, whether it be chords, reeds, or any other; and that the re-

verberation of such sounds may be controlled in the same manner however produced; and that radical changes might be made in other parts of the instrument, and my devices will be operative notwithstanding such change.

I have introduced two sound-boards, $p^1 p^2$; but in case one only were used it might be treated in the manner I describe, and the loss of area, and consequent lessening of the power of the instrument, be the only result.

I am aware of Letters Patent issued to George Caddick, March 10, 1874, No. 148,410, piano sounding-boards, and to C. W. Vogel, February 3, 1874, No. 147,202, reed-organs; and I claim none of the devices therein described, as I do not claim any function of the space between the sounding-boards as a sound-space, as described by Caddick, or an air-space, as described by Vogel.

I wish to be specially understood that the placing of the sound-boards p^1 and p^2 one above the other is a mere matter of convenience of space, and not for the purpose of in any way utilizing the inclosed space, and upon this distinction are founded claims Nos. 1 and 2 following.

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

1. The sound-board of a musical instrument, divided into sections by braces C C C C, cross-

ing and being affixed to the board at right angles with its length, the sections having areas differing in size, and pierced by the slots A A A A through the sound-board, parallel with and near to the braces C C C C, to produce a reverberatory chromatic sound-board, substantially as set forth.

2. The bridge or bridges of a musical instrument, divided by the spaces $b^1 b^2 b^3 b^4$, or their equivalents, in the manner and for the purposes set forth.

3. In a musical instrument, the combination of the sound-boards p^1 and p^2 , bridges G^1 and G^2 , braces C C C C, slots A A A A, and spaces $h^1 h^2 h^3 h^4$, or their equivalents, in the manner and for the purposes set forth.

4. In a musical instrument having two sound-boards, placed one above the other, the combination, with the nether sound-board, p^2 , of the bridge G^2 , passing through an orifice cut for the purpose in the upper sound-board, the bridge being serrated or notched by the transverse cuts $b^1 b^2 b^3 b^4$, in the manner and for the purposes set forth.

LORENZO CHASE.

Witnesses:

D. W. SCRIBNER,
MARY M. SCRIBNER.