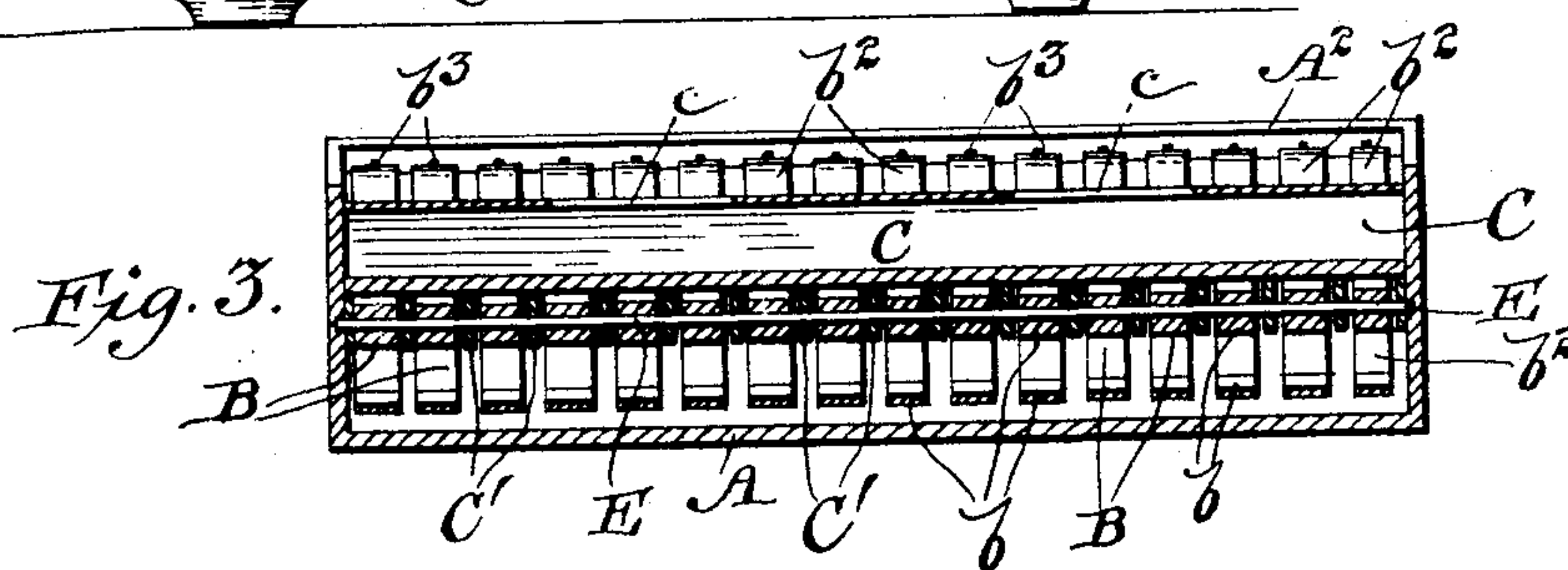
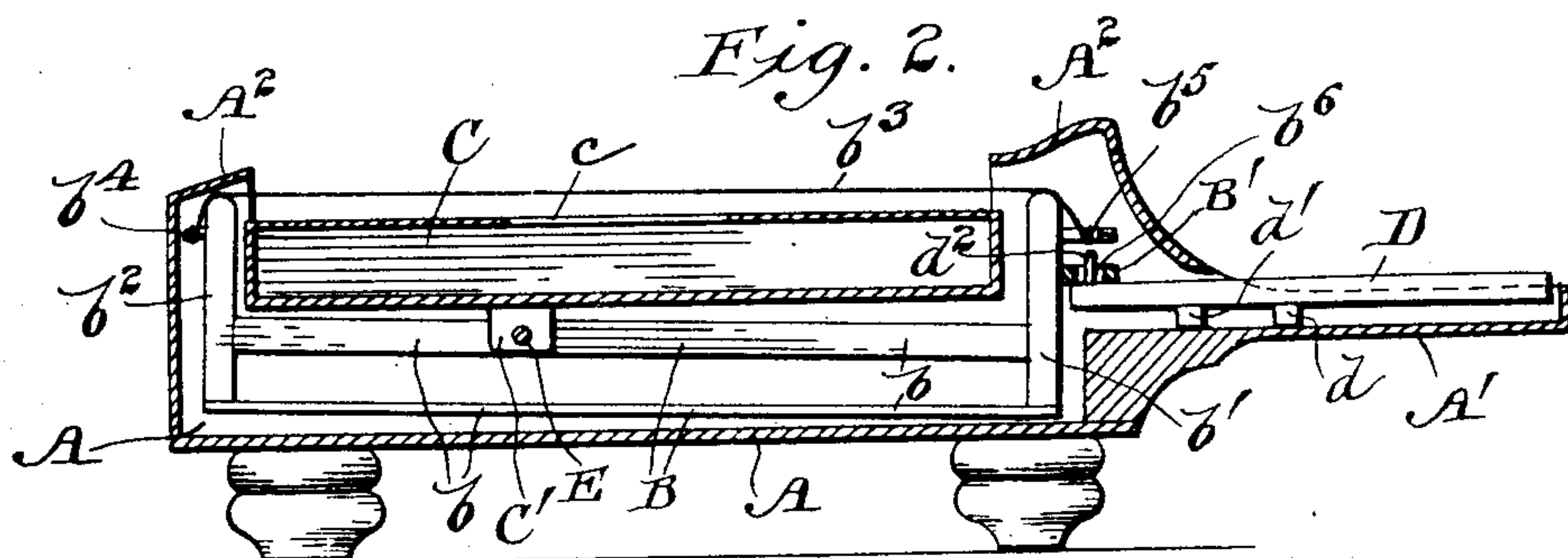
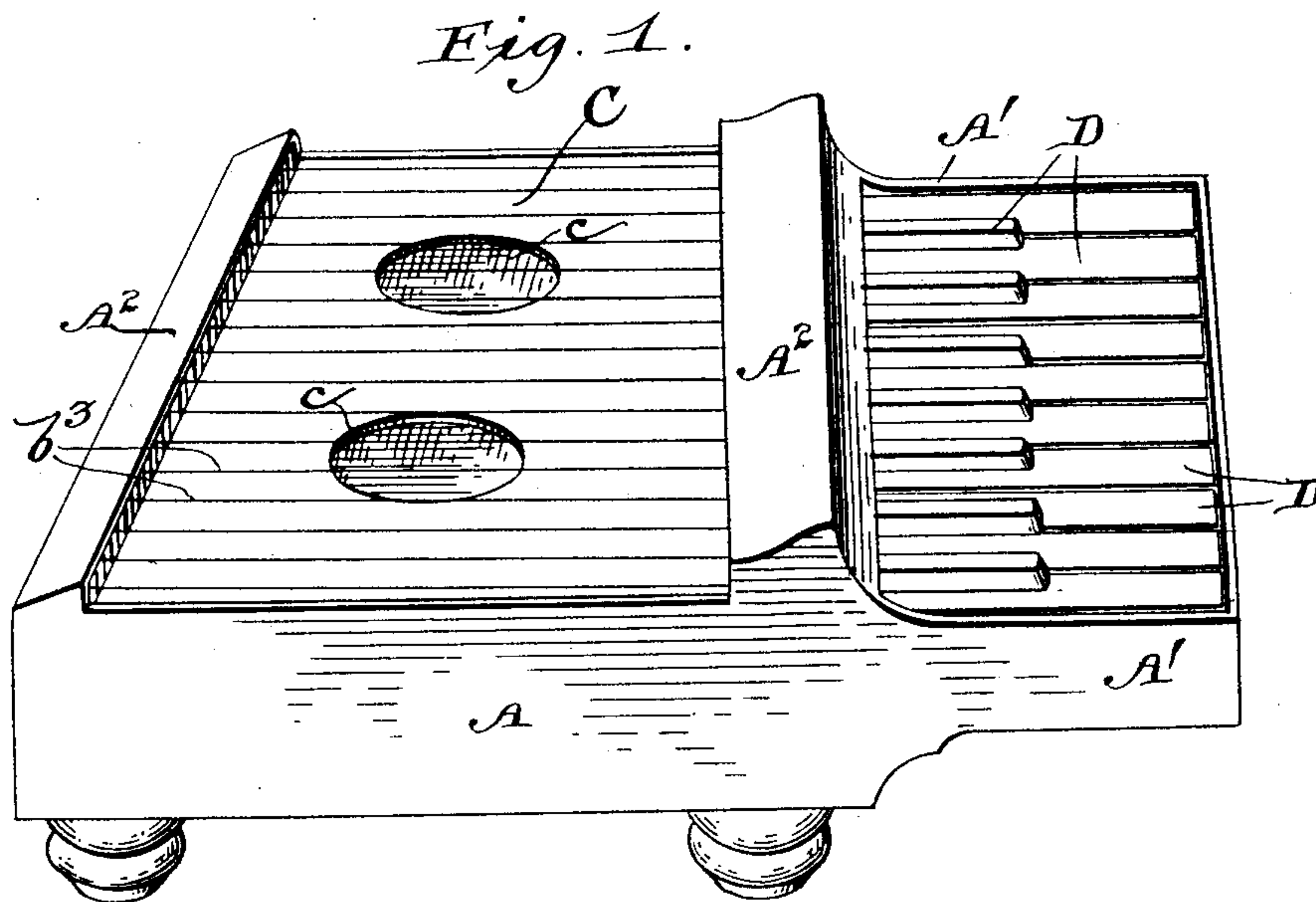


(No Model.)

P. M. E. CARSTENS.
STRINGED MUSICAL INSTRUMENT.

No. 589,414.

Patented Sept. 7, 1897.



WITNESSES

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UNITED STATES PATENT OFFICE.

PAUL M. E. CARSTENS, OF DULUTH, MINNESOTA.

STRINGED MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 589,414, dated September 7, 1897.

Application filed December 19, 1896. Serial No. 616,335. (No model.)

To all whom it may concern:

Be it known that I, PAUL M. E. CARSTENS, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Stringed Musical Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in stringed musical instruments, and more particularly to that class of instruments which are adapted to be played upon with a bow.

It consists in the combination, with a suitable casing, of strings or wires mounted upon separate frames, keys for operating said frames so as to be played upon, and a sounding-board.

It also consists in the combination, with a suitable casing, of pivoted frames carrying strings or wires, keys for moving said frames to bring the strings into playing position, and a sounding-board.

It further consists in certain other novel constructions, combinations, and arrangements of parts, all of which will be fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of my improved musical instrument. Fig. 2 is a vertical sectional view of the same, and Fig. 3 is a vertical sectional view taken upon the line of the pivotal bearing of the string-frames.

A in the drawings represents a casing of suitable shape; B B, frames for holding strings or wires; C, a sounding box or board, and D D keys for operating the string-frames.

The casing A is constructed preferably of wood and in a generally rectangular shape and has a forwardly-extended portion A', suitable for receiving keys similar to piano-keys. In the main portion of the casing A is located the sounding-board C, which is preferably constructed in box form, the top board of which may be provided with one or more openings c, as illustrated.

Below the sounding-board the frames B B are arranged. These frames may be formed of one or more strips of wood $b\ b$, having secured at their ends the upright pieces or posts

$b' b^2$, which extend to points a little above the sounding-board C, to the front and rear of the same, respectively. Upon the upper ends of these posts $b' b^2$ are strung playing strings or wires $b^3 b^3$, secured at their rear ends to pins or pegs b^4 in the posts $b^2 b^2$ and at their forward ends to tension-pins b^5 in the posts $b' b'$ and extending across the sounding-board above the same. The pins b^5 are preferably formed with rectangular ends, upon which a suitable key may be placed when it is desired to regulate the tension of the strings or wires b^3 . The frames B B are pivoted to the rear of their central points, and the forward ends are thus adapted to be held in their lowered position by gravity. The frames are preferably pivoted upon a cross-rod E, secured in the casing below the sounding-board C. The said frames B B may be spaced apart slightly by thin plates C', secured to the under side of the sounding-board C and projecting downwardly between each frame. By this construction the frames will be prevented from rubbing against each other and will have a more perfect action.

The operating-keys D D are arranged in the extended portion A' of the casing A and are provided with downwardly-extending fulcrums d and supporting projections d' , which limit the movement of the keys and support the inner ends thereof when they are at rest.

The inner ends of the keys D D are arranged in such proximity to the ends of the frames B B as to facilitate the latter being operatively engaged by the said keys. The coupling between said keys and frames may be of any suitable kind, but I prefer the simple means illustrated thus: The frames are provided with forwardly-extending projections B', provided with elongated perforations b^6 , and the inner ends of the keys D are provided with upright pins d^2 . The said projections B' rest upon the inner ends of the keys D, the pins d^2 engaging the perforations b^6 , so that when the inner end of a key is raised by depressing the outer end thereof the corresponding frame will be raised. The front and rear ends of the frames are preferably housed in a portion of the casing, as at A² A².

My device may be constructed with any desired number of strings or wires, and they

may be suitably tuned by regulating their tension, as above described.

The operating-keys D D will correspond in number to the number of strings and are preferably made similar in general shape to piano-keys.

When it is desired to play the instrument, the keys which are to be used are pressed down by the fingers, and the strings or wires which are thus raised above the rest are in position to be played upon by drawing an ordinary bow (not shown) across them.

It will be seen that my simple construction and arrangements of parts enables one to obtain results similar to those obtained by the use of a violin, but without the difficult fingering required by said instrument. The finger-keys render my invention susceptible to easy and quick manipulation.

Having described my invention, what I desire to claim and secure by Letters Patent is—

1. In a musical instrument the combination

with a case, of a sounding-board, frames pivoted below said sounding-board, and having posts extending above the same, strings or wires stretched upon said posts and extending across the top of said sounding-board and finger-keys for operating the said frames, substantially as described.

2. In a musical instrument the combination with a case, and sounding-board, of frames consisting of longitudinal pieces pivoted below the sounding-board and end posts secured to said pieces and extending above the sounding-board, braces connecting the lower ends of said posts, strings or wires secured to the upper ends of said posts, and keys for operating said frames, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

PAUL M. E. CARSTENS.

Witnesses:

J. S. HARTER,

C. SCHUYLER DAVIS.