

T. ATKINS.
Musical-Instruments.

No. 157,266.

Patented Dec. 1, 1874.

Fig. 1

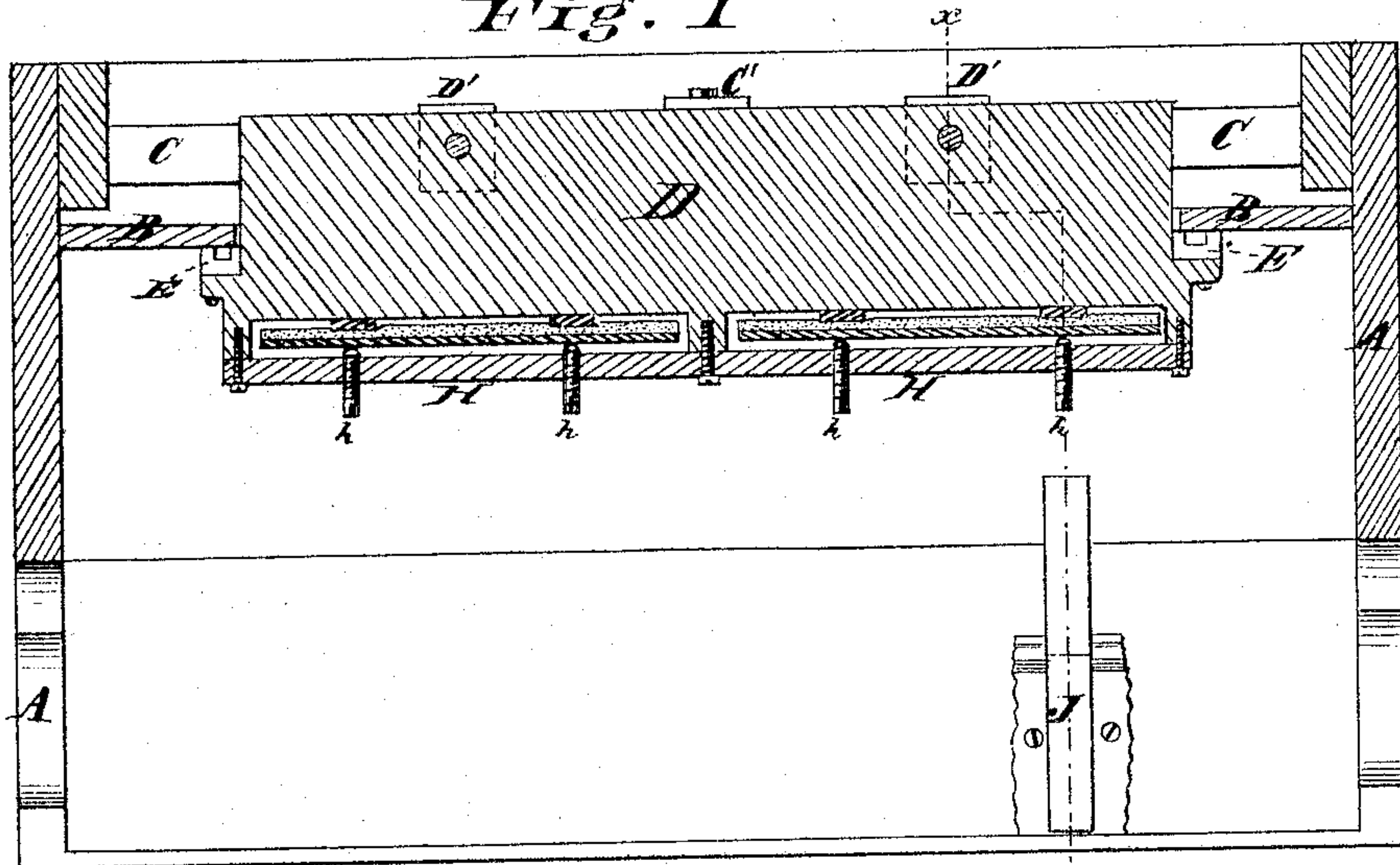
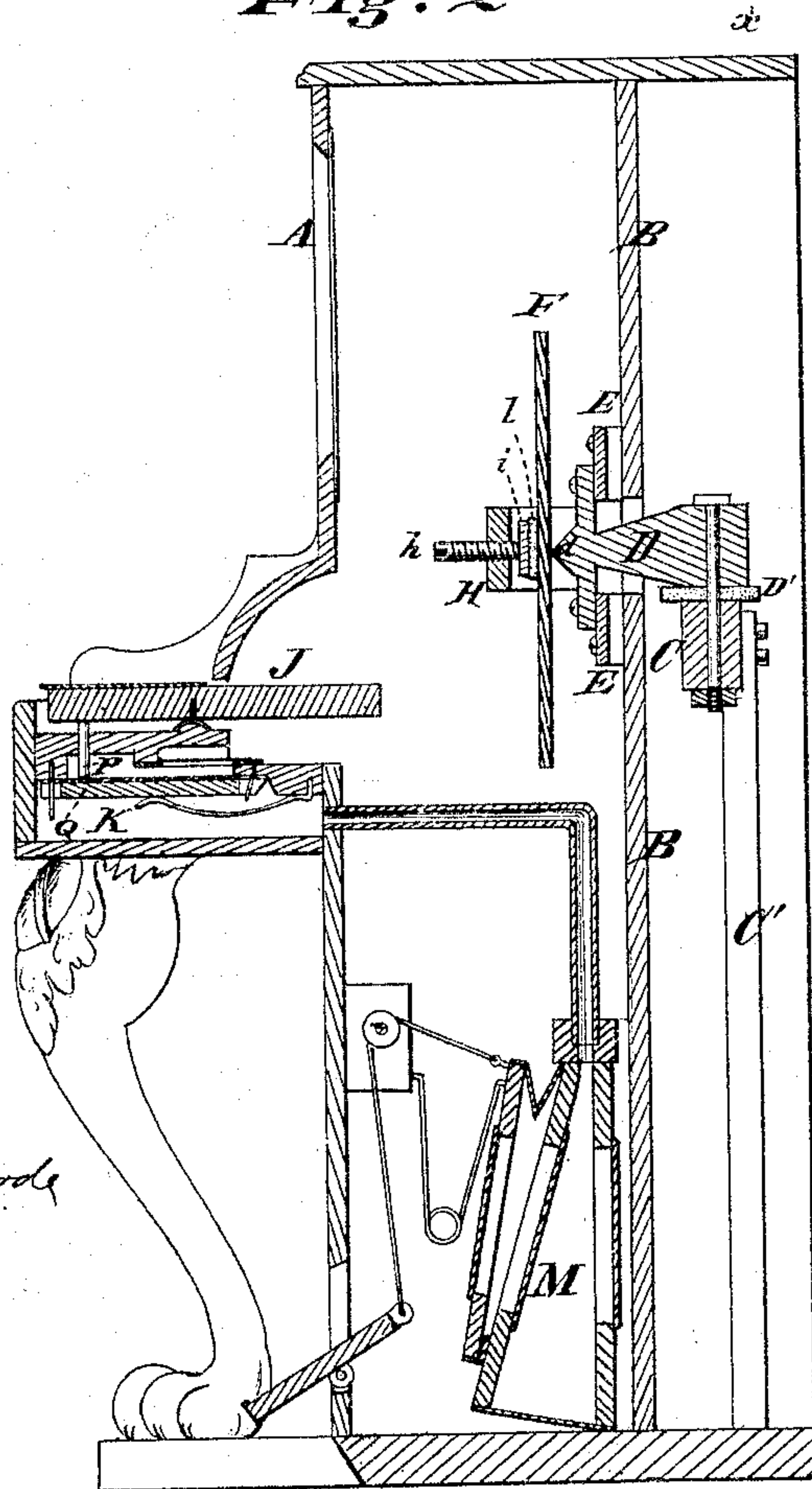


Fig. 2



Attest

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UNITED STATES PATENT OFFICE.

THOMAS ATKINS, OF CINCINNATI, OHIO.

IMPROVEMENT IN MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. **157,266**, dated December 1, 1874; application filed January 20, 1874.

To all whom it may concern:

Be it known that I, THOMAS ATKINS, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Musical Instruments, of which the following is a specification:

My invention relates, first, to the vibratory medium of a musical instrument; and consists in the provision of straight metallic bars attached at or near their centers to a suitable supporting-rail; second, to the construction of the metallic supporting-rail and manner of attaching the vibratory bars thereto; and consists in providing said rail with a sharp edge, against which the vibrating mediums are firmly pressed by means of set-screws or other well-known devices; third, to the construction of the sounding-board; and consists in cutting away a portion of it, so that the rail which carries the vibratory mediums may pass through and be suspended within the same; fourth, to the manner of supporting said rail and connecting it with the sounding-board; and consists in the provision of a support in the rear of the sounding-board and disconnected from it, to which the bar is attached after being inserted in the opening in the sounding-board, and also the provision of a suitable connection between the rail and the sounding-board; fifth, to the combination, in said instrument, of reeds actuated by the same movement of the keys which actuates the piano-action necessary to the vibrations of the metallic bars.

Figure 1 is a horizontal section through the center of the vibratory medium supporting-rail of my instrument, and Fig. 2 is a vertical section through the line *xx* of Fig. 1 with the action removed.

A represents the frame of an ordinary upright instrument, which is used for convenience to show one way in which my improvements may be applied. B represents the sounding-board, which has a transverse opening sufficiently long and wide to admit the rail D. C represents a wooden cross-rail in rear of the sounding-board, secured at its ends to the frame of the instrument; and C', a center support, which may be increased to any number necessary. D is a metallic rail, made with a sharp edge, *d*, to which the metallic vibra-

tory mediums are attached, as shown in Fig. 2. This rail passes through the opening in the sounding-board, and is firmly secured to wooden cross-beam C in the rear, so that the sounding-board is entirely relieved from the weight of the rail and its attachments, and also having cushions D', of rubber or any other material, which is a non-conductor between it and the beam C. E E is a bridge or bridges connected to the sounding-board and the flange of the rail D, and placed intermediately between them, so that the vibrations of the sounding medium are conveyed to the sounding-board. This bridge is constructed with a series of arches, so that the vibrations of the sounding-board are not obstructed. F represents the vibratory metal bars, steel being preferred, and it is also preferred to make them with a small notch on one side to fit the sharp edge of the support and to keep the bars from slipping; but with other proper methods of attachment this may not be necessary. H is a plate in front of the rail D, either cast with or attached to it, as shown, and is provided with a female screw opposite each vibratory bar. The vibratory bars are mounted as shown in Fig. 2, the set-screw *h* passing through the plate H and seating in a metal washer or plate, *i*, a soft substance, *l*, such as rubber or leather, being placed between the metal washer and the bar F. J represents the key-board, which may be made in the ordinary manner, and to which is attached a piano-action to actuate an ordinary hammer against the bars F in the ordinary manner. Immediately under the key-board is a reed-box, K, containing reeds, such as are ordinarily used in reed-organs. Connected with the reed-box is a bellows, M, of ordinary construction. To the under side of the finger end of the key J is attached a pin, P, extending through the top of the reed-box, and reaching to the valve Q, which is operated by the key J and pin P in the ordinary manner.

When it is desired to use the reeds alone the piano-action may be disconnected.

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

1. The bars F, suspended at or near their centers to a supporting-rail, with their ends adjusted to vibrate in unison, and adapted to

be used as sounding mediums in a musical instrument, substantially as herein set forth.

2. The metallic rail D, with sharp edge *d*, for attaching, supporting, and in combination with, metallic vibratory hooks, rods, bars, plates, or forks, substantially as shown and described.

3. The combination of the vibratory bars F, with rail D, having a sharp edge, *d*, when said rail is supported in rear of the sounding-board and attached thereto by means of a bridge, substantially as shown and described.

4. The reeds, in combination with the vibratory bars, mounted as shown, and arranged in such manner that the reed-valves and the

piano-action may be actuated by the same key, substantially as herein set forth.

5. The sounding-board B, constructed with a transverse opening, arranged as described, for the purpose of allowing the rail D to pass through for attachment to the beam C in rear, and enabling the vibratory bars to be placed close to the sounding-board, substantially as and for the purpose described.

In testimony whereof, I have hereunto set my hand this 10th day of January, 1874.

THOMAS ATKINS.

Witnesses:

EDWARD BOYD,
J. F. BALDWIN.