

J. & H. W. WHITNEY.

Musical Instruments.

No. 137,643.

Patented April 8, 1873.

Fig: 1.

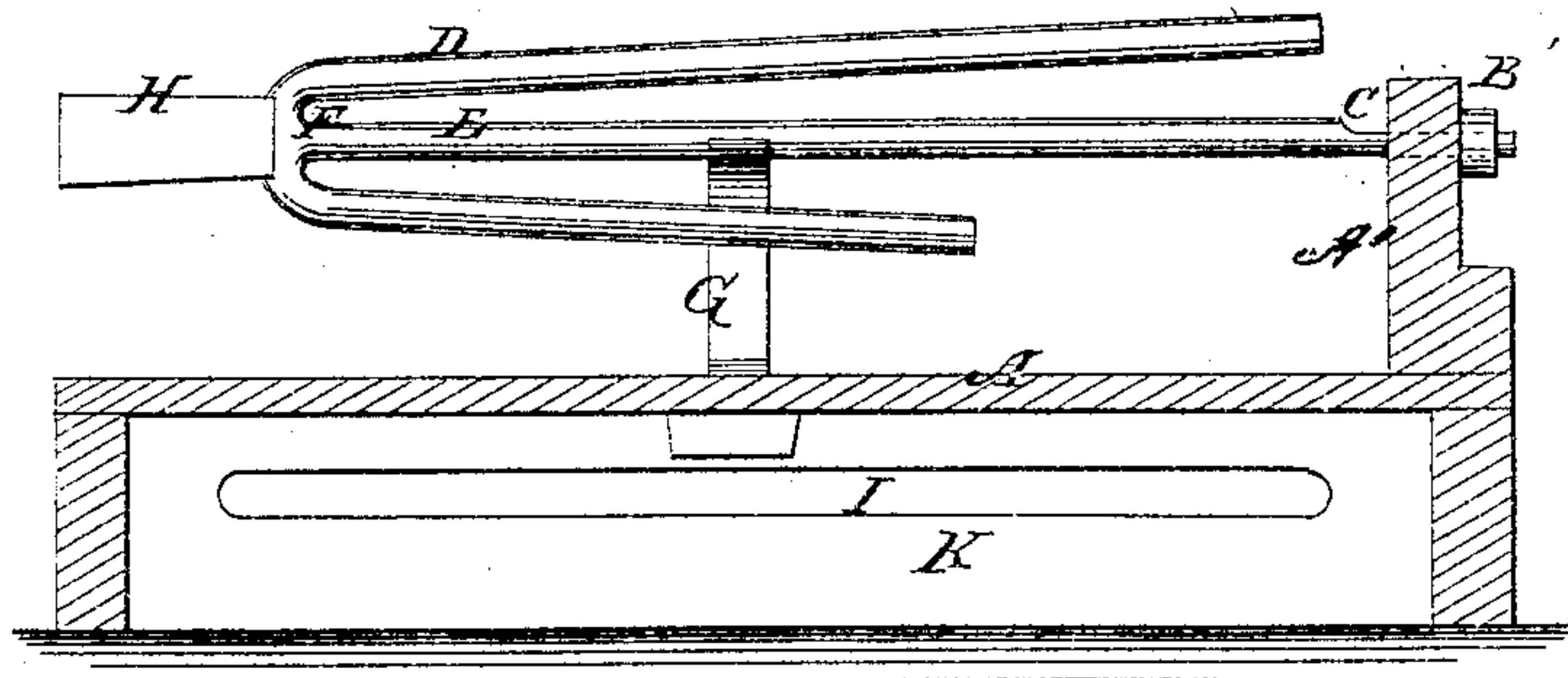


Fig: 2.

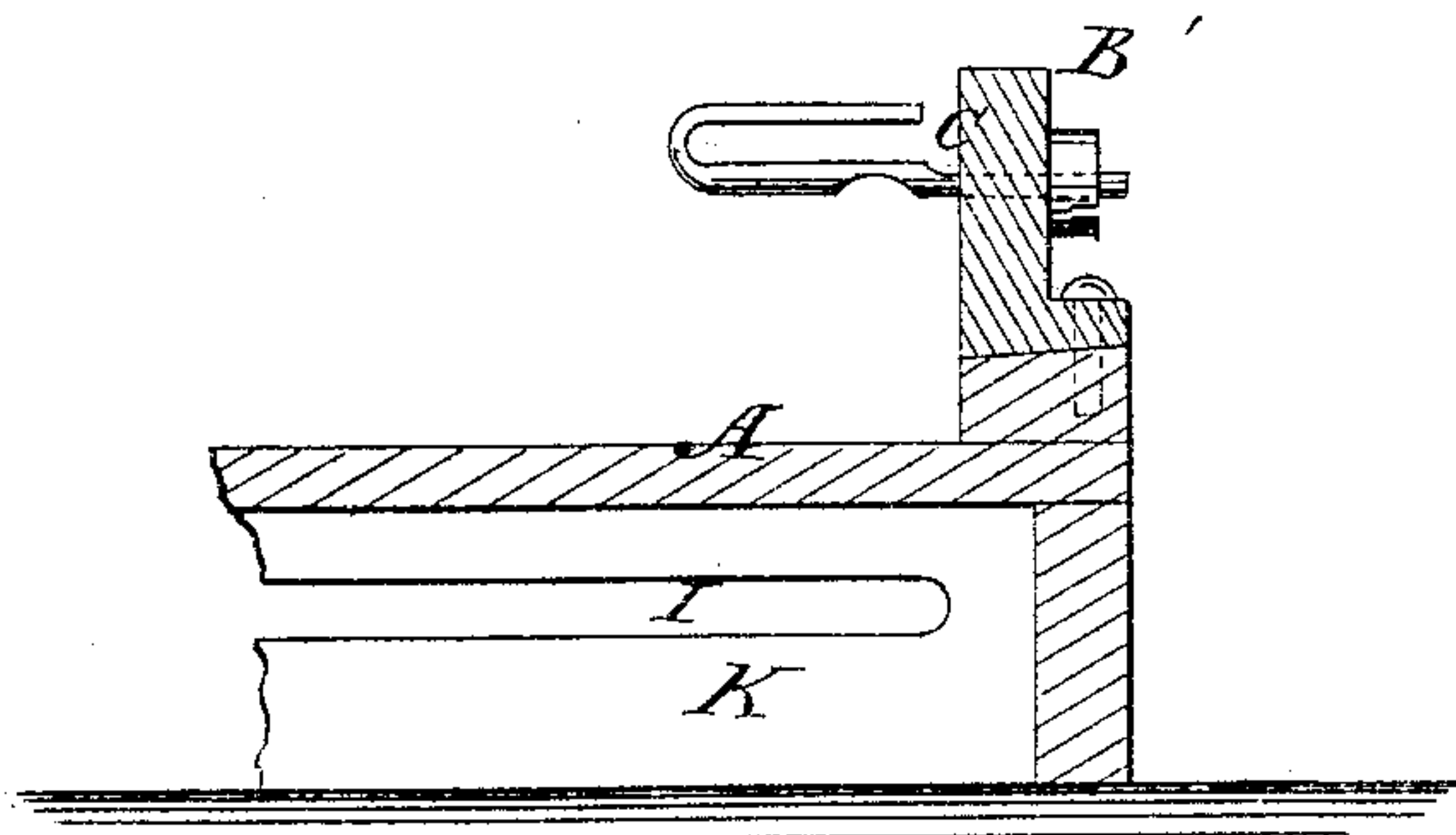


Fig: 3.

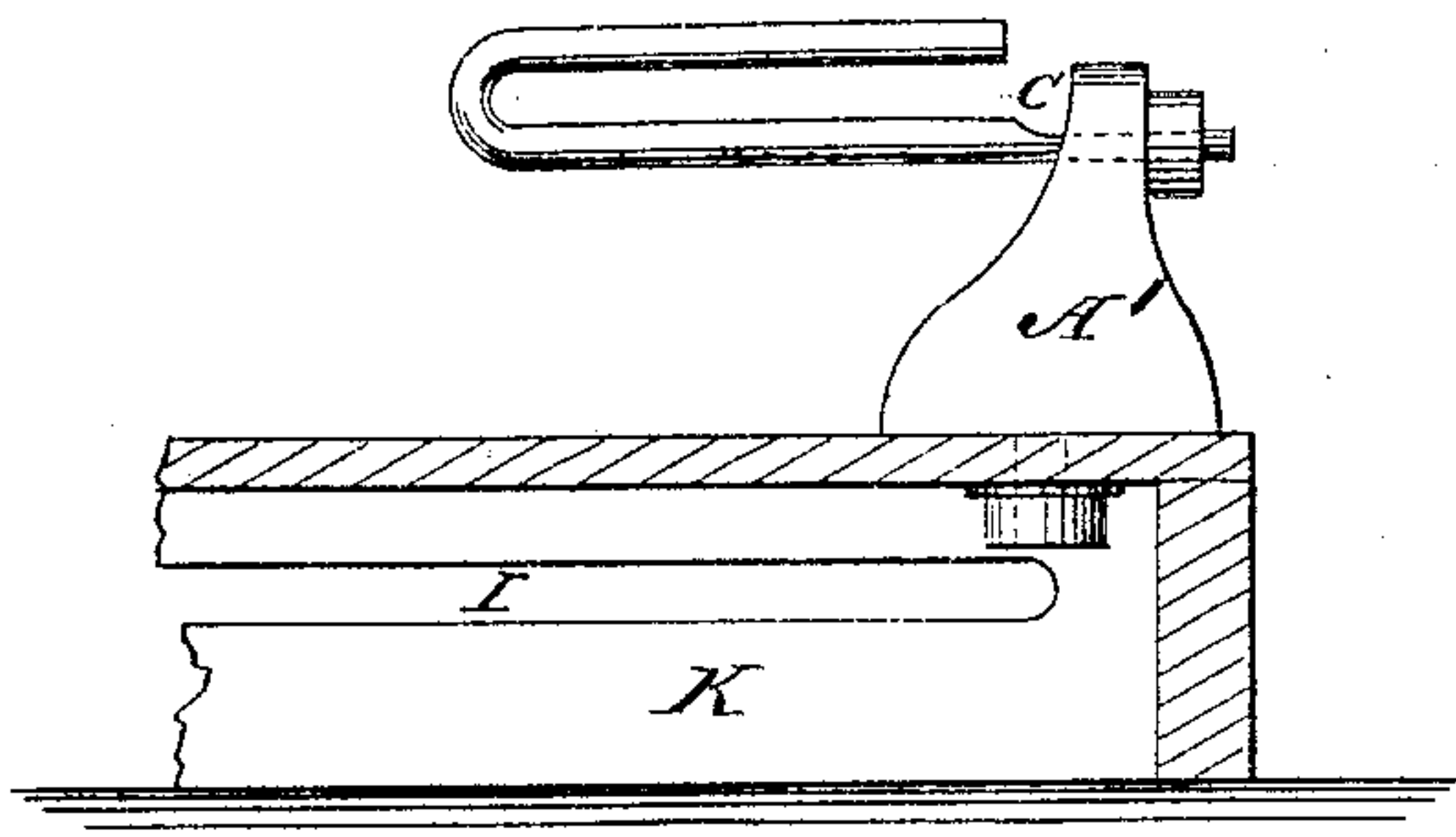
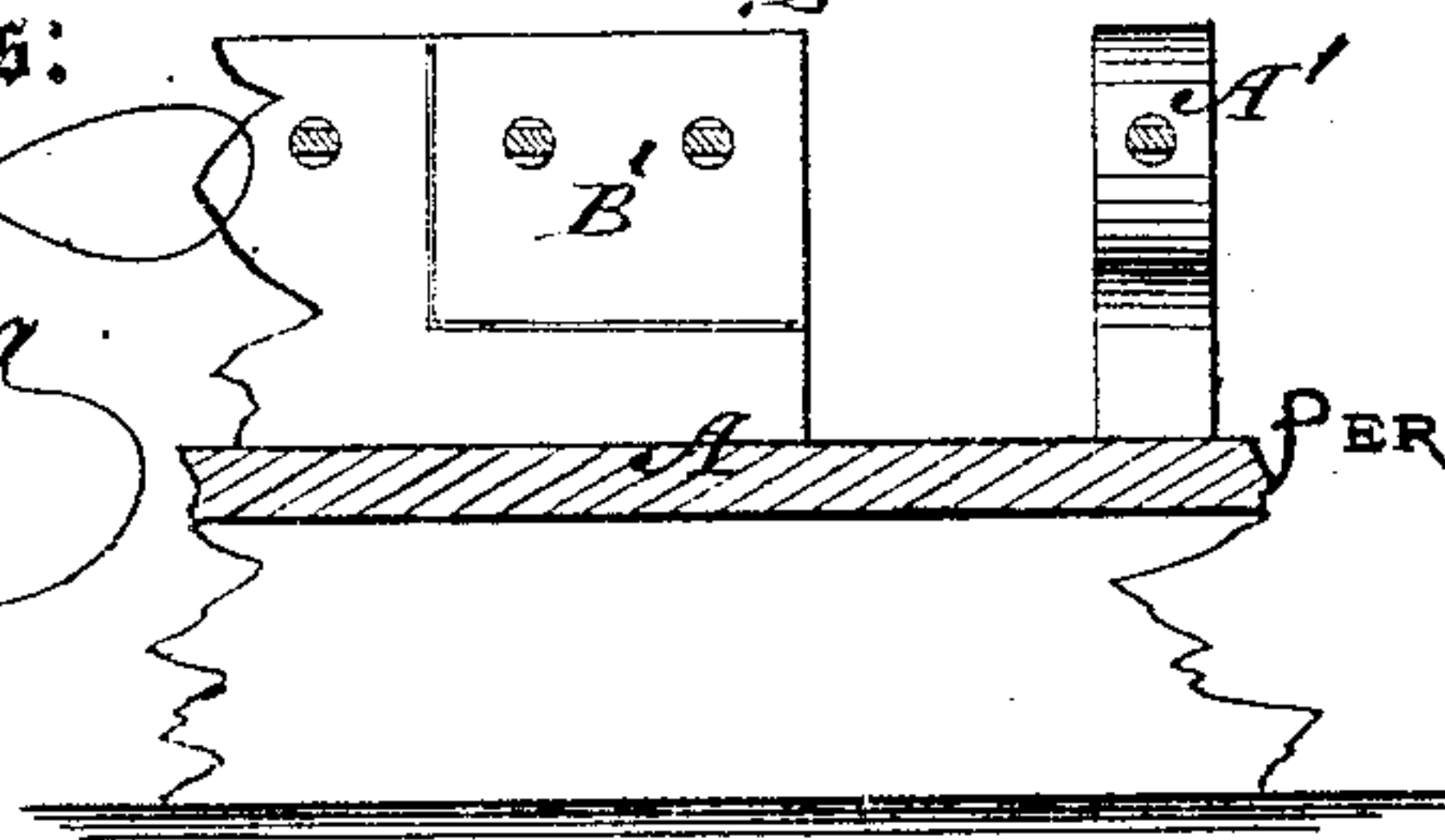


Fig: 4.

Witnesses:

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UNITED STATES PATENT OFFICE.

JUSTIN WHITNEY AND HORACE W. WHITNEY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. **137,643**, dated April 8, 1873; application filed February 1, 1873.

To all whom it may concern:

Be it known that we, JUSTIN WHITNEY and HORACE W. WHITNEY, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Musical Instruments, of which the following is a specification:

Our invention relates to musical instruments in which hooks are made to vibrate to produce musical tones, which said improvements we will proceed to describe in the following specification and claims.

Figure 1 is a transverse section of the sounding-board, the bar or plate for holding the hooks and side elevation of a double hook. Figs. 2 and 3 are similar sections, showing different hooks and a modification of the supporting-bar; and Fig. 4 is a front elevation of a section of the sounding-board and the bar for holding the hook.

Similar letters of reference indicate corresponding parts.

We divide the metal plate bar or frame, upon which the hooks are supported, into sections A' B', &c., suited for one or more hooks, as may be preferred, the object being to destroy the fundamental tone of the plate or bar, which we find counteracts and consequently destroys the tones of certain hooks, which causes imperfection in the scale of the instrument. We also substitute wood bars or plates in the place of these iron or metal bars, particularly in the middle and lower parts of the instrument, where we find it serves equally as well as iron, and by which we economize in labor and cost of material, and we make the instrument lighter. We will also in some cases make the said bar or frame entirely of wood; but for the upper part of the instrument we prefer to use iron or other metal, in which to secure the hooks, as the tones can be brought out better. For fastening or securing the hooks to the bar or frame we bore or mortise holes of any shape or form into or through it, into or through which we insert the shanks of the hooks, and make them fast by nuts, or any equivalent device, by which we secure them more firmly than by the knife-edge and the screw to hold them down upon it, as in the common way, and these shanks we flatten horizontally, as shown at C, so that the bearings will be at right angles to the line of vibration, by which

the tendency to produce harmonic tones is lessened.

We make the hooks of wire, which produces a quality of tone more agreeable than other forms of metal, probably because of the greater density of the metal obtained when wire of the exact size as that of the hook to be formed is used, and by the use of wire we greatly cheapen the cost as compared with metal of other form, as we have not to prepare it as to size.

When we use double hooks D, we solder a middle leg, E, or shank to them in the bow F, by which to attach them to the bar as a simple and cheap method of attaching the supporting piece, and we apply a support, G, to this shank about midway between the bow of the hook and the bar, the said support being placed on the sounding-board, the said support being to assist in sustaining the hook and to communicate the vibrations to the sounding-board; we also apply a load, H, of metal or other substance to the bow of the double hook, in the manner shown in Fig. 1, to destroy the harmonic tone; and we also give the base end of the sounding-board freedom to vibrate by arranging the slot I in the board K, by which we obtain free tones from the lower notes.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The metal plate or bar A' B' for supporting the hooks, arranged in sections, adapted for one or more hooks, substantially as specified.
2. The double-hook and supporting-bar, made of wire and connected together, substantially as and for the purpose described.
3. The middle support G, combined with the middle leg of the double hook and the sounding-board, substantially as specified.
4. The combination of a weight or load, H, with the bow-end of a double hook, substantially as specified.
5. The sounding-board, provided with slot A at the base end, as and for the purpose set forth.

JUSTIN WHITNEY.
HORACE W. WHITNEY.

Witnesses:

HORACE WHITNEY,
ELIZABETH W. FOLGER.