Thomas Atkins
and
Henry Drewer

Imp't in

Musical Instruments

PATENTED JUL 11 1871

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Fig. 1

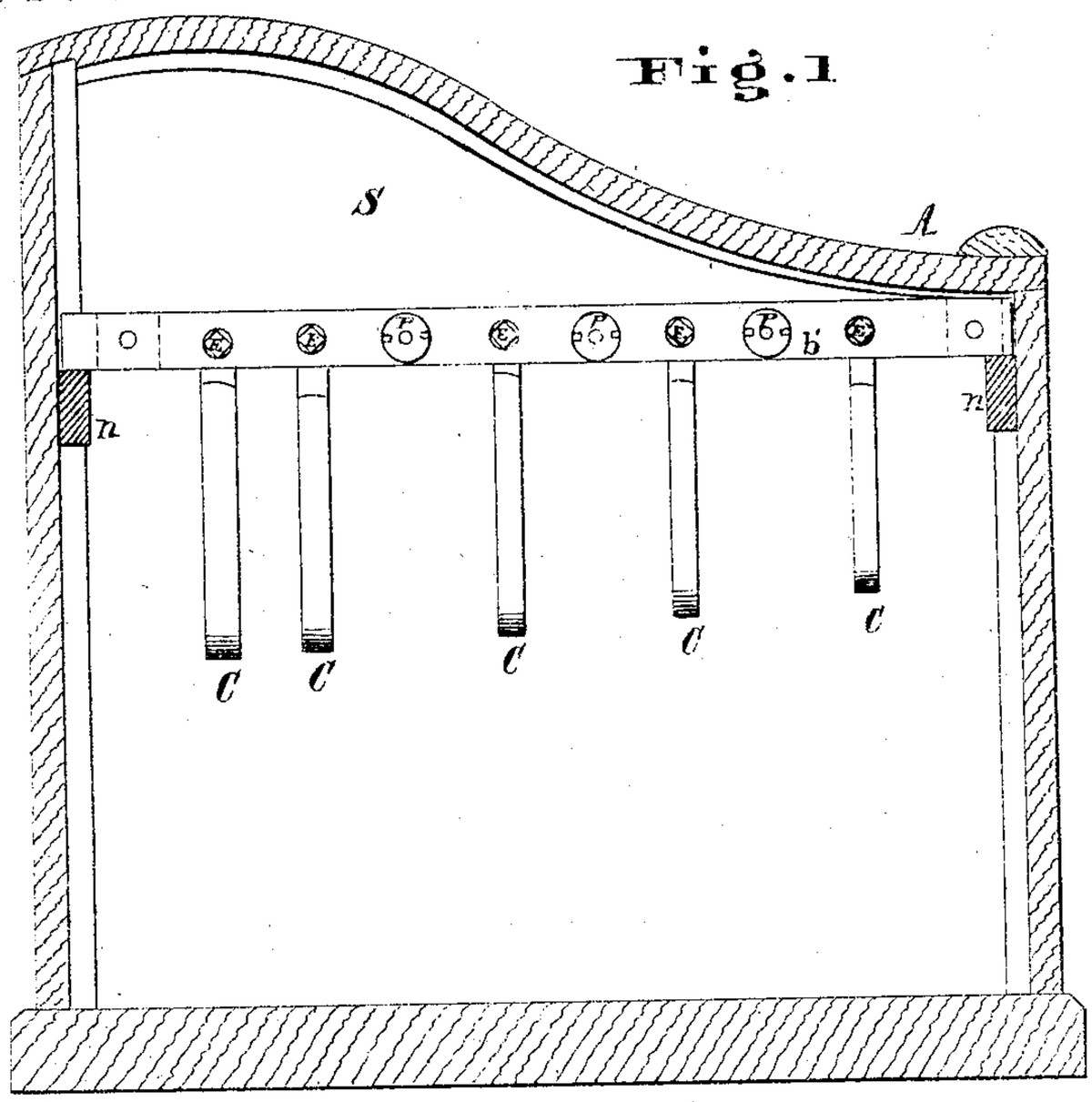


Fig. 2

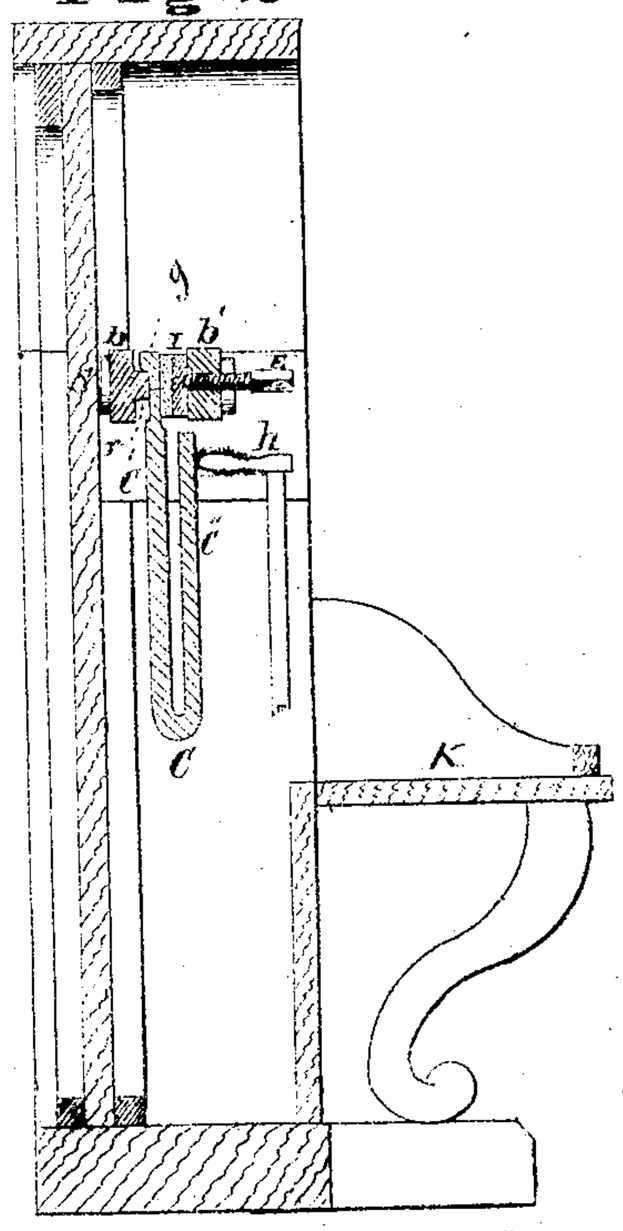


Fig. 3

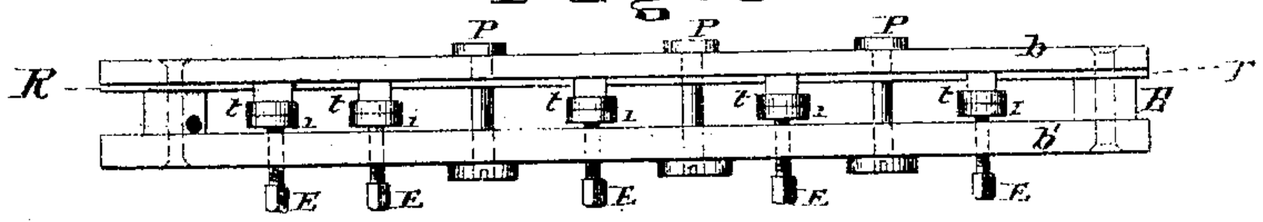


Fig. 5

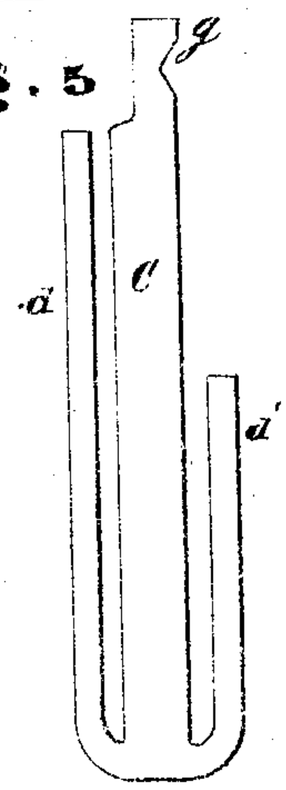
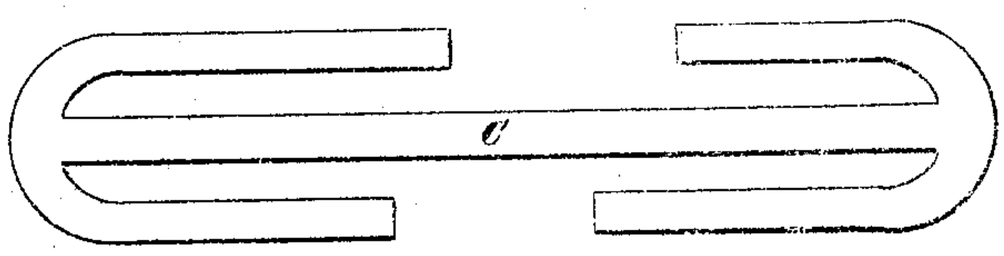


Fig. 4



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UNITED STATES PATENT OFFICE.

THOMAS ATKINS AND HENRY DREWER, OF CINCINNATI, OHIO.

IMPROVEMENT IN MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. 116,793, dated July 11, 1871.

To all whom it may concern:

Be it known that we, THOMAS ATKINS and HENRY DREWER, 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:

Our invention relates to that class of musical instruments operated with the hands and feet by means of keys and pedals. In appearance, sound, and harmony, it resembles a piano-forte, and the operation of the performer is in every respect the same; but we dispense with strings of any kind, and, instead, use tuned hooks or hangers of peculiar construction and arrangement. The object of our invention is to produce a musical instrument which will equal the piano-forte in sweetness of tone, at the same time increasing the variety of cords, which, when properly constructed, will be much more durable and less liable to get out of tune than any stringed or reed instrument heretofore used.

Figure 1 is a longitudinal vertical section, showing the front of the hooks, embodying our invention, in place. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a plan view of the top of the hook-frame of the same, in which are shown the top of the hooks and manner of attachment. Fig. 4 is a plan of one form of hook embodying our invention. Fig. 5 is a plan of another hook of the same.

A represents the frame of the instrument as we design to use it, though any other form may be employed instead thereof. S is the sounding-board, which may be of any known form and material. K is the key-board. B is a metallic frame, to which the musical hooks C are attached. We prefer to make this frame with two metallic bars, *b* *b'*, arranged parallel to each other and to the sounding-board S of the instrument. The musical hooks C are metallic, and the vibration of the prongs produces the musical tones of the instrument. The bar *b*, Figs. 2 and 3, is constructed with a bead or ridge, *r*, as shown, for the rigid attachment of the hooks, which we prefer to attach as follows: A screw-key or bolt, *e*, which fits a female screw cut in the bar *b'*, passes through said bar and seats into a metal washer, *i*. A soft substance, such as leather or rubber, is placed between the metal washer and the hook C. The key *e* acts as a set-screw, by means of which the hook C can be firmly screwed to the bar *b*. A gain, *g*, is cut in the top of the hook C, as shown in Fig. 5, to fit into the bead or ridge *r* of the bar *b*. By this mode of attachment the sound is communicated to the bar *b* only, which bar is connected to the sounding-board by a suitable number of sounding-posts, *p p*, made of suitable material and of sufficient number to transmit the sound to the sounding-board. The frame or bridge B is shown as attached to the frame of the instrument by means of brackets *n n*, upon which the bar *b'* rests; but any form of attachment may be employed which will leave the bar *b* free from contact with the frame of the instrument, save through the medium of the sounding-posts. The hooks C may be made with one, two, three, or fourprongs, but the prongs must be tuned in octaves. When two or more prongs are used a chord is produced of two or more octaves. In Fig. 2 the primary hook only is shown. C' is the bar or shank, and C'' the vibrating prong, which is sounded by the use of a soft or padded hammer. When two prongs are used (see Fig. 5) the longer one, *d*, is the lower and fundamental prong, and the shorter one, *d'*, is the secondary, which must be tuned one or more octaves higher than *d*. Fig. 4 shows a hook with four prongs. Three prongs may also be used, provided, always, that the several prongs are tuned in octaves.

The instrument is operated by the ordinary piano-forte action of keys and springs actuating hammers, with dampers, pedal attachments, &c. The hooks should be so attached that the hammers will strike the longer or fundamental prong at a point nearly opposite the termination of the shorter prong. The proper point to strike a hook with only one prong or the primary hook is shown by the hammer *h* in Fig. 2. It is necessary that the hooks be rigidly attached to a suitable metallic plate or bar, which bar must communicate the sounds produced by the vibration of the hooks to the sounding-board by suitable sounding-posts, in order to produce the musical tones by the vibration of the metal. The hook may be of any shape—triangular, square, round, &c.—and may be made of any appropriate metal, but steel is preferred, and they may be placed either vertically, as shown in the drawing, or in an inclined or horizontal position; but, in all cases, the opposite or fundamental and secondary prongs must be of unequal length, and the point of attach-

ment of the hooks to the bar must be at the open end of the prongs, as shown. These hooks, with prongs of unequal length, are entirely different from forks with prongs of equal length heretofore used.

When properly protected against rust the hooks will remain in tune for a very long period of time, and can be constructed to produce tones equal in sweetness and strength to those of the best piano-forte.

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

1. The hook C, adapted to produce musical tones by the vibration of its prongs, constructed and employed substantially as set forth.

2. The hooks C, with two or more prongs tuned in octaves and adapted to produce musical tones, when constructed and employed substantially as herein set forth.

3. The combination of the hooks C with the frame B, substantially as set forth.

THOMAS ATKINS.
HENRY DREWER.

Witnesses:
E. BOYD,
E. E. WOOD.