

U. C. HILL.  
Bell Piano-Fortes.

No. 149,585.

Patented April 14, 1874.

Fig. 1.

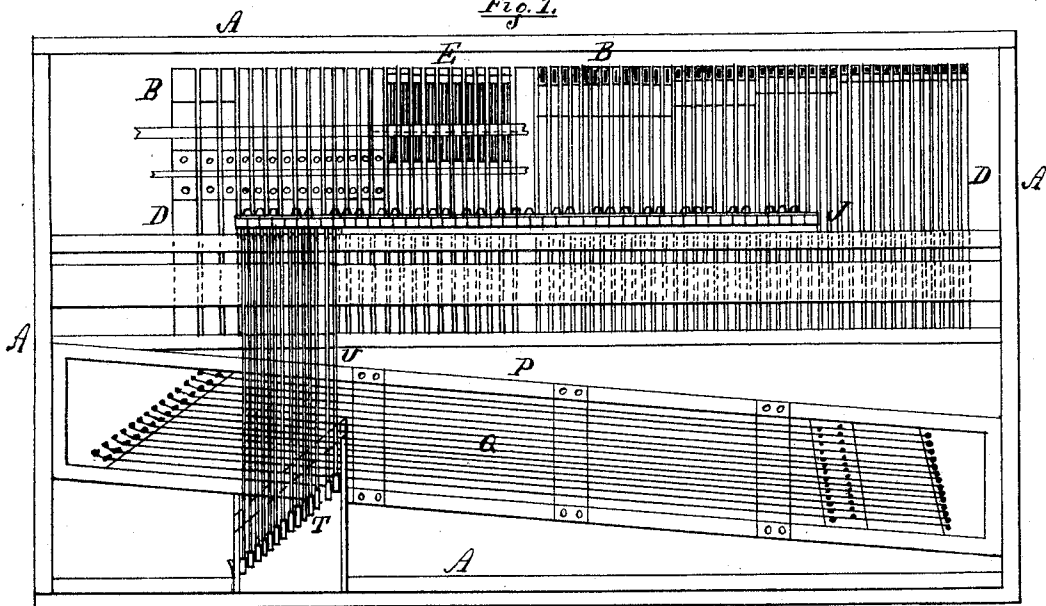
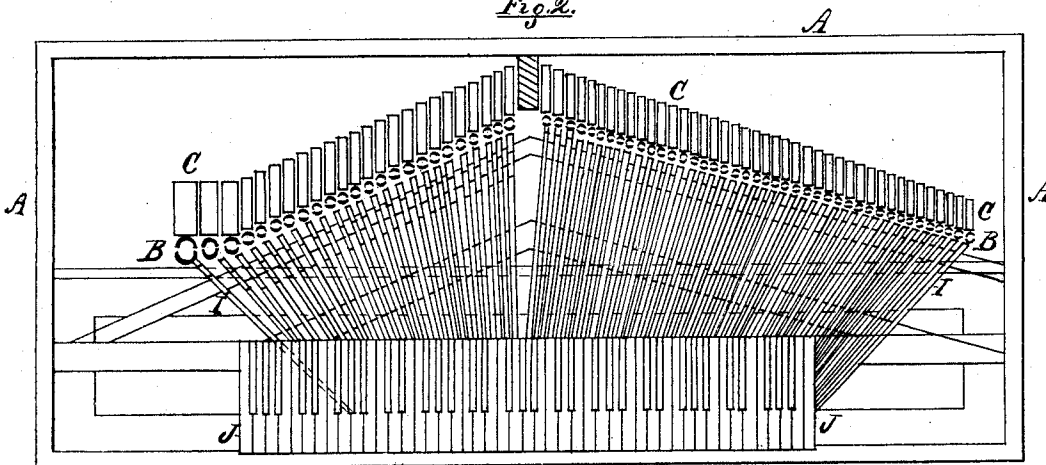


Fig. 2.



Witnesses

Arthur Neill  
Edward Pearce

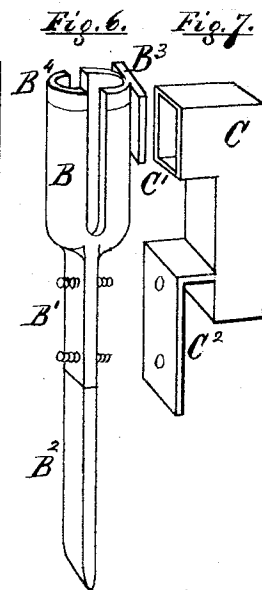
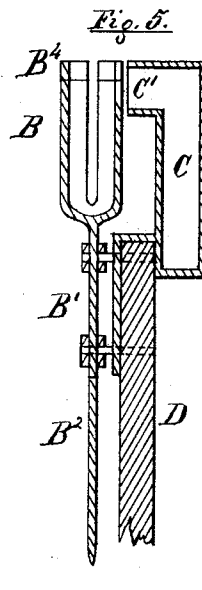
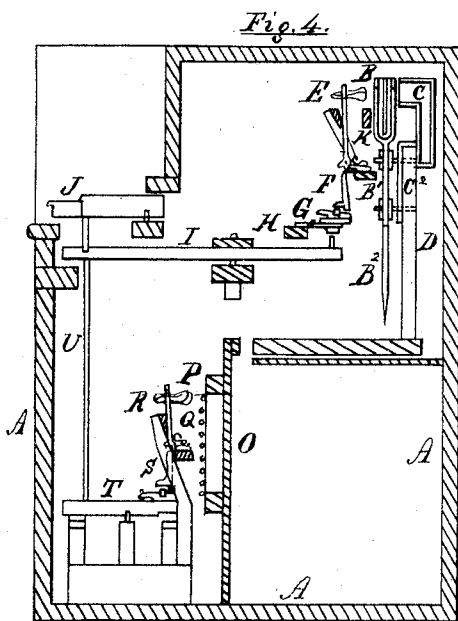
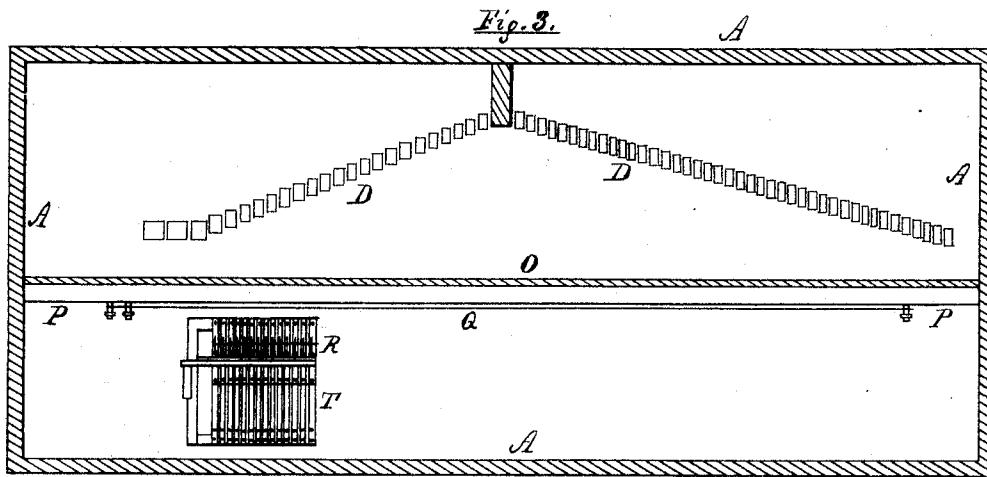
Inventor

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Witnesses

Arthur Veille  
Edward Pearce

Inventor,

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# UNITED STATES PATENT OFFICE.

URELI C. HILL, OF NEW YORK, N. Y.

## IMPROVEMENT IN BELL PIANO-FORTES.

Specification forming part of Letters Patent No. **149,585**, dated April 14, 1874; application filed September 30, 1873.

*To all whom it may concern:*

Be it known that I, URELI CORELLI HILL, of the city, county, and State of New York, have invented certain Improvements in Cellulated Bell Piano-Fortes, of which the following is a specification:

The improvements relate to an instrument wherein the sounds produced are obtained from a series of bells or forked vibrators, in combination and conjunction with reverberating cells, using wires for certain of the bass notes or bells, as desired, and upon which Letters Patent of the United States were granted, bearing date June 19, 1847, No. 5,164, and February 9, 1858, No. 19,296; also, February 28, 1860, No. 27,288; and the object of my present invention and improvements is to construct, arrange, and combine the internal mechanism in such manner that it will all be contained within the dimensions and portability of the ordinary piano-forte, and at the same time obtain as its peculiar advantages more power, brilliancy, sweetness, and length of tone, rendering the mechanism more easy of access, more durable, less liable to get out of order, easier regulated, the bells and cells answering the touch with greater delicacy, &c.; and my invention definitely consists, first, in placing the bells or vibrators vertically, each bell in conjunction with a reverberating cell corresponding and in combination therewith, and both attached to supporting posts or standards; second, in constructing the cells of metal with a forward-projecting mouth, and with a knee fitting over the top of standard placed vertically and in combination therewith; third, the supports for holding and sustaining the bells and cells, constructed one for each and in one piece or separate pieces with spaces between; fourth, the combination of set pieces of soft metal, forming elongations extending downward from the handles of bells, and below their fastenings to standards, soldered or otherwise properly secured thereto, acting as a balance to bells and to keep them steady; fifth, in combination with the bells, a wing, of metal and peculiar shape, to deepen the tone, and lead pieces properly secured on the ends of prongs to facilitate tuning; sixth, in combination with the set pieces, as described, to bells, a sounding-board attached thereto, particularly

to lower notes, to strengthen and add to their brilliancy; seventh, the combination of the jacks with a jack-rail for the bell-division, instead of to the lever or key, as heretofore; eighth, placing the levers forming the action in fan-like form, in conjunction and combination with the bells and cells and standards placed in one or more ranges or angles diagonally with the key-board; ninth, the combination of dampers with the bells, so arranged as to operate against the front of bell; tenth, the combination of levers, tripper or fly, jack, jack-rail, hammer, and keys, forming the action for upper bell-division; eleventh, placing strings or wires for bass notes on a lower level or beneath the key-board with sounding-board, in combination, wires running lengthwise and placed vertically over each other; twelfth, the combination of levers, trippers, hammers, connecting-rods, keys, &c., with wires or bells, forming the action to lower or string division.

Figure 1 represents a vertical view lengthwise, supposing the front of case removed. Fig. 2 is a horizontal view or plan with top of case removed. Fig. 3 is a horizontal section below the key-board. Fig. 4 is a vertical section transverse. Fig. 5 is a vertical section of bell and cell (enlarged) with top of standard. Fig. 6 is the bell alone, in perspective, with elongation or set piece. Fig. 7 is the cell alone, in perspective, and enlarged. Fig. 8 is a horizontal view of the bell, showing the best form, and in which it will be seen the curve of the bell is struck from two centers, the width of opening apart.

A is the case of the instrument or box within which the mechanism is inclosed; B, the bells, cast of composition metal, cylindrical, (in horizontal section;) B<sup>1</sup>, the handle; B<sup>2</sup>, the set piece; B<sup>3</sup>, the wing; B<sup>4</sup>, the lead piece for tuning; C, the cells, mouth C<sup>1</sup>, knee C<sup>2</sup>, all of metal; D, the posts or standards set with spaces between each, and on one or more ranges or angles with the key-board. E are the hammers; F, the tripper or fly; G, the jack; H, the jack-rail; I, the long lever or under key; J, the keys forming the key-board. K are the dampers striking the bell in front, operated in any suitable manner. O is the sounding-board of the wire-division; P, the iron frame, and Q the wires; R, the hammers;

S, the tripper or fly; T, the long lever or under key; U, connecting-rods running up to the keys J, so that when the keys are struck the motion is communicated to hammers R. W and X are two centers of the curves of bell, the bell not being a perfect circle horizontally. Bells may be used for lower bass notes with cells without a sounding-board, and struck in similar manner as those described above or as the wires. When strings are used no jack-rail is required, jacks being attached to key.

The lead on the ends of bell-prongs corresponds in shape and thickness with the curves, and the lead is cut off in tuning as far as necessary to get proper pitch, and the tuning once properly done the bells never require retuning. The bells are held by a hole through the handle, which hangs on a clothed screw arranged so as not to touch the handle metal; and it is also held in place by leather nuts, to avoid rattling noise, and nearer the ends of the handles they are held by a small screw to gently keep the vibrators in place, with leather nuts, &c., complete.

The same sounding-board used for the wire-division may be used with the bells, if desired, on the opposite side to the strings.

In large instruments bells will likely be used in place of wires, but where economy of room is necessary wires will be more suitable.

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

1. The bells or vibrators B, placed vertically, in combination with reverberating cells C and posts or standards D, (for treble, bass, or both,) when constructed substantially as shown and described.

2. The cells C, constructed, as described, of metal, and with knee C<sup>2</sup> placed vertically, in combination with standards D, substantially as set forth.

3. The supports or standards D, when constructed in combination with cells C, as and for the purpose set forth.

4. The combination of tuning attachment B<sup>4</sup> with bell B and wing B<sup>3</sup>, as described.

5. The combination of wing B<sup>3</sup> with bell B, when constructed in manner described, and for the purpose set forth.

6. The levers I, arranged in fan-like form, in combination with the bells, cells, and standards placed in one or more ranges or angles diagonally with the key-board, substantially in manner and for the purpose described.

7. The combination of hammer E, tripper or fly F, jack G, jack-rail H, long lever or under key I, keys J, and bell B, when constructed and arranged substantially as described and set forth.

8. The set of strings or wires Q for the bass notes, arranged vertically beneath the key-board J, and in combination with sounding-board O, as described and set forth.

9. The combination of strings, wires, or bells, hammer R, tripper or fly S, long lever or under key T, rods U, and keys J, when constructed and arranged substantially as and for the purpose described.

URELI C. HILL.

Witnesses:

ARTHUR NEILL,  
EDWARD PEARCE.