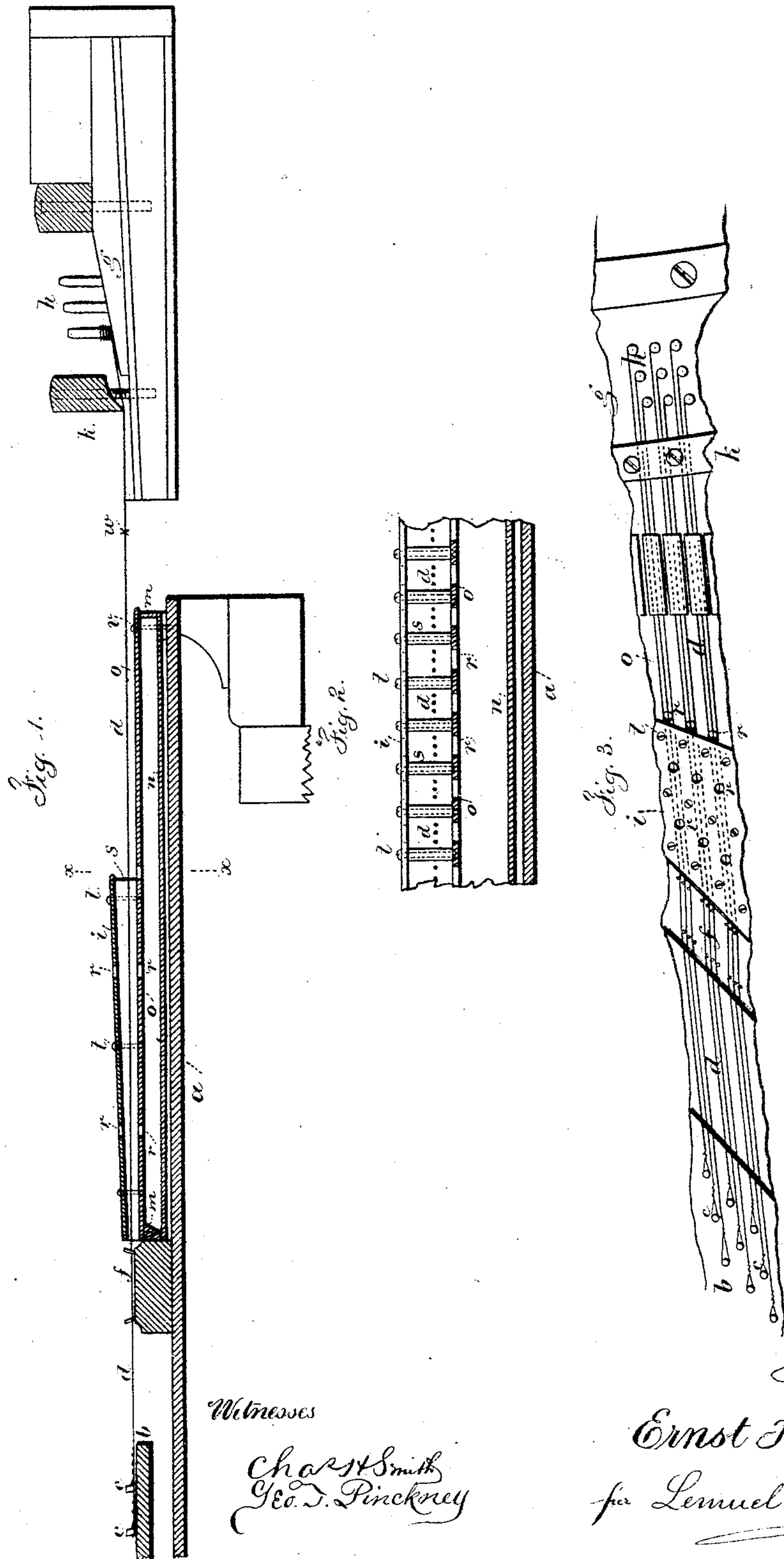


E. KAPS.
Piano-Forte.

No. 218,535.

Patented Aug. 12, 1879.



Witnesses

Charles Smith
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Inventor

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per Lemuel W. Terrell
att'y

UNITED STATES PATENT OFFICE

ERNST KAPS, OF DRESDEN, SAXONY.

IMPROVEMENT IN PIANO-FORTES.

Specification forming part of Letters Patent No. **218,535**, dated August 12, 1879; application filed June 7, 1879.

To all whom it may concern:

Be it known that I, ERNST KAPS, of Dresden, Saxony, piano-forte maker to the royal court of Saxony, have invented an Improvement in Piano-Fortes, of which the following is a specification.

This improvement is adapted to grand, square, cottage, and other piano-fortes, and is made for the purpose of amplifying and improving the tone.

The wires or strings composing one note are passed through a resonator, that is made as a case, that allows the strings to vibrate freely, and in which the air-vibrations are amplified and rendered more melodious. The improvement is especially adapted to the middle and treble notes, but it may be applied to any of the notes.

In the drawings, Figure 1 is a section lengthwise of the strings; and Fig. 2 is a cross-section of *xx*; and Fig. 3 is a plan of a portion of the resonator.

a represents the sounding-board; *b*, the frame, with the hitch-pins *c*. *d* are the wires or strings of the pianos. *f* is the sounding-board bridge, with its pins, and *g* is the wrest-plank; *h*, the tuning-pins, and *k* the down-bearing for the strings. These parts may be of any desired character.

My resonator is applied to the strings or chords, near the sounding-board bridge, between the same and the place *w*, where the hammers strike, such resonator consisting of a range of boxes through which the chords or strings pass, and which resonator is connected with the sounding-board, and has holes through it for the passage of the acoustic vibrations.

It is generally preferable to make the resonator of one or more plates, *i*, of wood or other suitable material, that are above the strings, and one or more plates, *o*, of wood or other suitable material, between the strings and the sounding-board *a*, and to connect these plates *i* and *o* by the vertical partitions *s s*, so that each chord or group of strings is in its own rectangular resonant case. These partitions *s* are preferably narrower at the end next the sounding-board bridge, so that the resonant case is tapering, and there are holes at proper

places through both the plates *i* and *o*, as shown at *r*.

The screws *t* should pass through the plate *i* and partitions *s* into the plate *o*, and this plate *o* is connected to the sounding-board by the screws *v*. There are to be vertical supports or partitions between the sounding-board and the plate *o* at suitable intervals, so as to keep the parts in their proper relative positions, and, if desired, there may be a bottom plate, *n*, and strips *m*, to form a resonant case between the strings and sounding-board, the same being closed except at the openings *r*, that are adjacent to the strings.

Each resonant case may be of a size and length to respond acoustically to the note of the strings passing through it.

The resonant cases form in the aggregate what I term a "sound-hood."

I am aware that sounding-boxes have been attached to different parts of a piano, such as to the frame or the sounding-board. In all such cases the vibration of the sounding board or case was depended upon to give vibrations to the boxes. In my improvement the air in each resonant case receives a vibration from the string itself when it is struck, thereby the resonant vibrations of the string are communicated directly to the air of the case, which responds thereto.

I claim as my invention—

1. The sound-hood formed of a series of resonant boxes, in combination with the sounding-board and the strings of the piano, and applied near the sounding-board bridge, and with the strings passing through the boxes, substantially as set forth.

2. In combination with the strings, sounding-board, and sounding-board bridge, a range of resonant cases through which the strings pass, which cases are narrowest at the end that is adjacent to the bridge, substantially as set forth.

This specification signed by me this 21st day of April, 1879.

ERNST KAPS.

Witnesses:

WILHELM WIESENHÜTTER,
MARTIN KÖRNER.