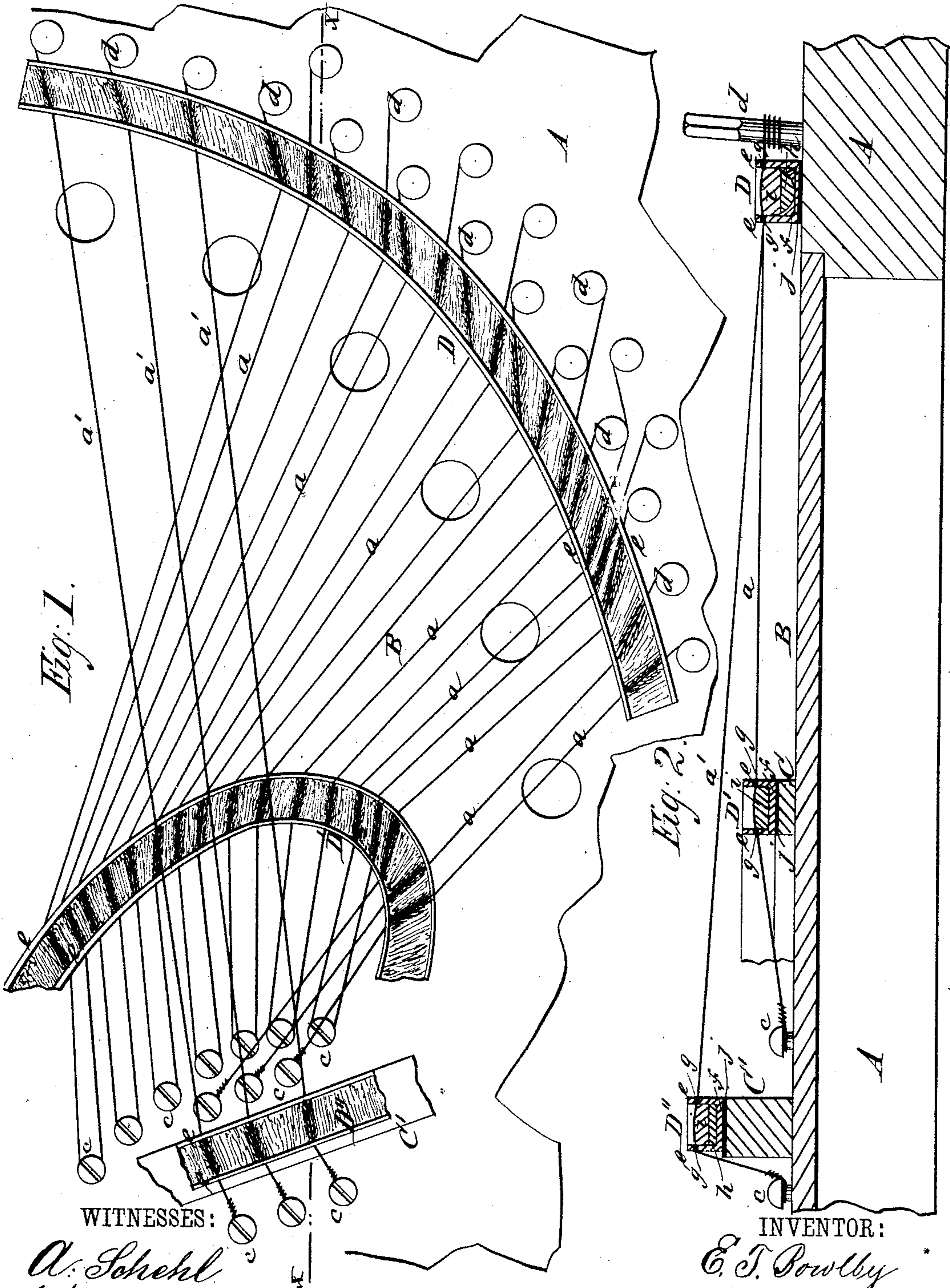


E. T. BOWLBY.  
Piano-Forte Agraffe.

No. 225,100.

Patented Mar. 2, 1880.



WITNESSES:

A. Schehl  
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# UNITED STATES PATENT OFFICE.

EDWARD T. BOWLBY, OF DIXON, ILLINOIS.

## PIANO-FORTE AGRAFFE.

SPECIFICATION forming part of Letters Patent No. 225,100, dated March 2, 1880.

Application filed October 23, 1879.

*To all whom it may concern :*

Be it known that I, EDWARD T. BOWLBY, of Dixon, in the county of Lee and State of Illinois, have invented a new and useful Improvement in Pianos, of which the following is a specification.

My invention relates particularly to improvements in the agraffe which clasps the strings to the bridge on the sounding-board; and the object of the improvement is to prevent the disagreeable jarring of the strings caused by the springing of the frame of the instrument and the settling of the bridge and sounding-board.

In the accompanying drawings, Figure 1 is a plan view of my improvement; and Fig. 2 is a longitudinal section of the same, taken on line *x x* of Fig. 1.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the frame of the piano. B is the sounding-board. C is the bridge for strings *a*, and C' is the bridge for the overstrung bass-strings *a'*. *c* represents the studs to which the ends of the strings are fastened, and *d* represents the tuning-pins around which the ends of the strings opposite the studs are wound.

Three agraffes, D D' D'', are shown in the drawings, D being placed under the strings next to the tuning-pins *d*, D' under strings *a* and on bridge C, and D'' on bridge C'. Each agraffe is composed of double sides *e e*, rising from a bottom plate, *f*. In sides *e e* are transverse holes *g g*, in line with each other, for the passage of each string, so that each string is clasped twice where it passes through the agraffe, and by this means given a double bearing.

Between sides *e e* on bottom *f* is placed a layer of wood, *h*, and on the wood is placed a cushion, *i*, made of rubber, leather, or other

suitable elastic material. The layer of wood may be omitted from the agraffe, as shown at D', where the elastic cushion alone is placed between sides *e e*.

Between sides *e e* the strings are stretched over the elastic cushions *i*, as shown in Fig. 2. The cushion presses the strings up against the upper sides of holes *g*, so that the strings are held close to the sides of the holes. Hence when the frame is sprung by the strain of the strings the two bearings furnished by the double-sided agraffe in holes *g*, combined with the elastic cushion *i*, hold the strings firmly and prevent them from giving out the jarring sound which is produced by the vibrating strings striking against the agraffe as usually constructed.

Between agraffe D and the frame A, and between D' D'' and bridges C C', respectively, a layer of felt, *j*, is interposed.

In the upper edges of sides *e e* of agraffe D' are notches just under overstrung strings *a'*. The object of said notches is to prevent contact between strings *a'* and the sides of agraffe D'. The agraffes will be firmly bolted to the bridges on the sounding-board.

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

1. In combination with the double metallic agraffe and rubber cushion *i*, the layer of wood *h*, substantially as described.

2. In combination with the strings of a piano, a metal agraffe composed of sides *e e*, with holes *g* and bottom *f*, and the elastic cushion *i*, constructed to operate in the manner substantially as described.

EDWARD T. BOWLBY.

Witnesses:

C. S. BROWN,  
EDWARD STERLING.