

J. CHICKERING.
PIANOFORTE.

No. 1,802.

Patented Oct. 8, 1840.

Fig. 1.

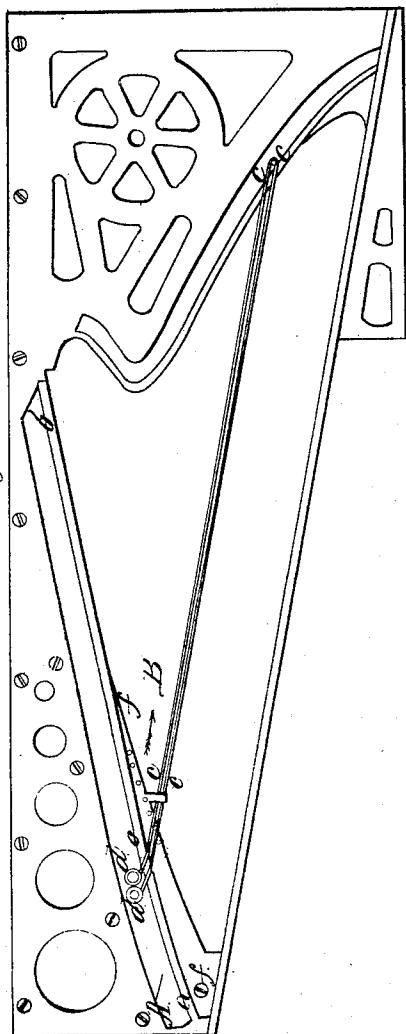
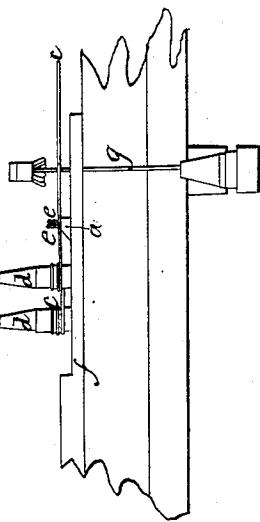


Fig. 2



UNITED STATES PATENT OFFICE.

JONAS CHICKERING, OF BOSTON, MASSACHUSETTS.

PIANOFORTE.

Specification of Letters Patent No. 1,802, dated October 8, 1840.

To all whom it may concern:

Be it known that I, JONAS CHICKERING, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and 5 useful Improvements in Pianofortes.

The said improvements the principles thereof, together with such parts or combinations I claim as my invention I have herein set forth and described, which description taken in connection with accompanying drawings herein referred to composes my specification.

Figures 1 and 2 represent my invention, the former being a top view of an iron 15 frame on which the strings are stretched, while the latter is a section of a part of the same taken on the line A B.

My first improvement consists in casting the bridge *a b* Fig. 1, and *a* Fig. 2, over 20 which the strings *c c* pass to the straining pins *d d* upon, or solid with the frame. Heretofore this bridge has been constructed of wood, screwed down to the upper surface of the frame. By changes of temperature 25 the expansion of the wood raises the lower part of the bridge from the frame, and when the strings are struck by the hammers the vibration of the loose parts is highly injurious to the tone of the instrument. I find 30 by experience, that in order to produce fullness of tone which is occasioned by a longer and more rapid vibration of the strings all parts of the instrument should be as solid, and connected together with as few joints, 35 as possible, and the great improvement and difference in tone, produced by thus casting the bridge in one piece with the frame, (which has never been done before, becomes immediately apparent, when the 40 sounds emitted from an instrument on the old plan of construction are compared with those produced by the strings of one having the bridge cast solid with the plate or frame. This results from well-known philosophical 45 principles or laws of sound, and which may be easily verified by a very simple experiment or by a little close observation. It is sufficient to know that sound is produced or emitted from matter by the vibration or pulsation of its particles, and also 50 that the sound produced by the vibrations of the strings in piano fortés would be varied or modified more or less by the parts with which it is directly or indirectly connected 55 and the natural conclusion would be, that

the more compact and consolidated the matter is to which vibration is communicated the more perfect, strong and full will be the tone produced by the strings. Again it will be admitted that different metals and 60 materials emit different qualities of tone when vibrated, according to the density of their particles, that being more perfect which comes from a material in which the particles are most compact and dense.

From the foregoing it will readily be deduced that an iron bridge is a great improvement, and has many advantages over those constructed of wood, and that the portion of the effect of the vibration of the strings, 70 which is communicated to the sounding board through the medium of the frame and bridge is more effectually conducted where the said frame and bridge are combined together, than where they are separate and 75 composed of different materials.

The pins *e e* which are driven into the bridge and against which the strings or wires bear in their passage to the straining pins are thus more effectually confined in 80 the iron bridge, than in one of wood, and as the diagonal strain of the pins *d d* on the bridge is so great, it not only has a tendency to split or crack the bridge, but it usually lifts or raises the same from the frame so 85 as to injure the tone by the vibration of the strings being communicated to the bridge. This difficulty is effectually prevented by my improvement and the tones of the instrument greatly improved.

Another improvement which I have made in piano fortés is to cast the socket *f f* Figs. 1, and 2, through which the damper wires *g* pass, solid with the frame and bridge instead of forming it of wood, and attaching it by glue or otherwise to the bridge, which latter arrangement as will readily be perceived is exceedingly liable to become deranged by the loosening or separation of the socket from the bridge.

It will be readily apparent, from the principles above set forth that this improved arrangement of the socket through which the damper wires pass, likewise assists in producing a better quality of tone.

Having thus described my improvements I shall claim as my invention,

Attaching or combining, the bridge, (over which the strings pass to the straining pins) and also the socket through which the dam-

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per wires pass, to or with the iron frame by casting them thereon, or solid in one and the same piece with the frame, the whole arrangement being substantially in the manner and for the purposes herein set forth.

In testimony that the foregoing is a true description of my said invention and im-

provement I have hereto set my signature this thirteenth day of August in the year eighteen hundred and forty.

JONAS CHICKERING.

Witnesses:

CALEB EDDY,
EZRA LINCOLN, Jr.