

J. E. ATWOOD.

Metal Frames for Piano-Fortes.

No. 157,187.

Patented Nov. 24, 1874.

FIG. I.

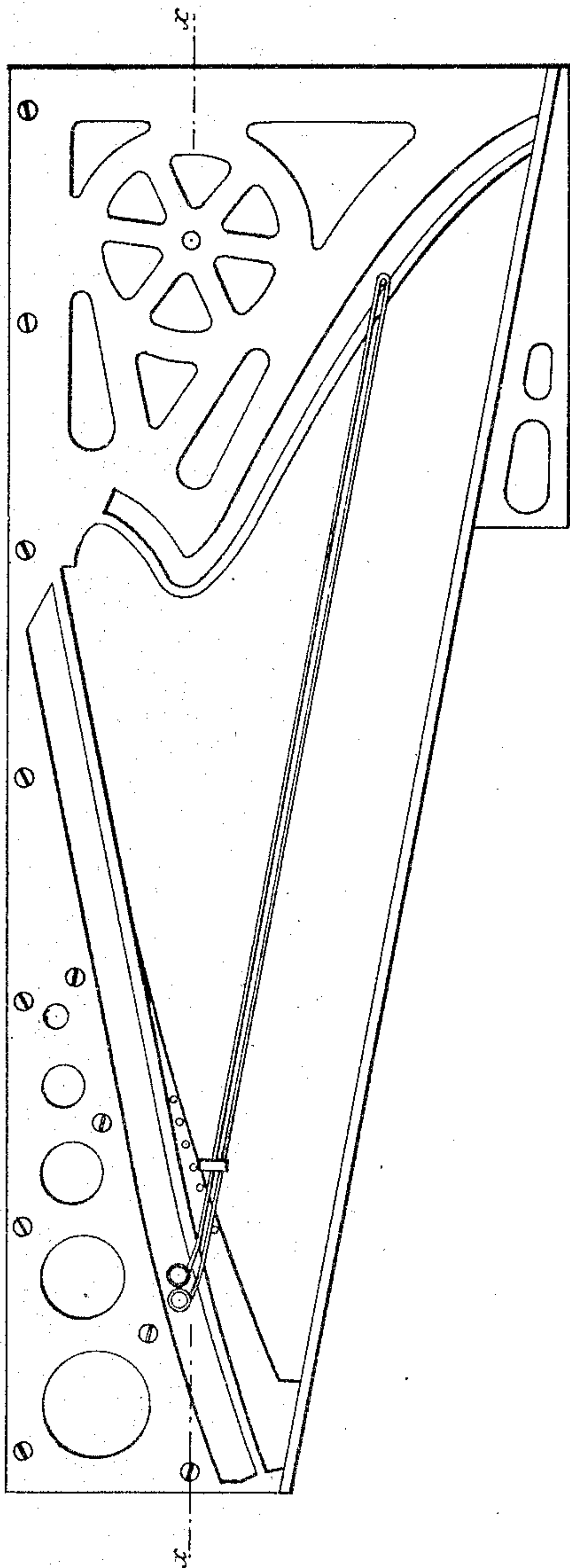


FIG. II.



WITNESSES:

A. H. Norris.  
George C. Smith Jr.

INVENTOR:

James E. Atwood.  
By his attorney.  
James L. Norris.

# UNITED STATES PATENT OFFICE.

JAMES E. ATWOOD, OF PITTSBURG, ASSIGNOR TO HOWARD TILDEN, OF  
PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN METAL FRAMES FOR PIANO-FORTES.

Specification forming part of Letters Patent No. **157,187**, dated November 24, 1874; application filed  
June 25, 1874.

### CASE D.

*To all whom it may concern:*

Be it known that I, JAMES E. ATWOOD, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in High Steel Sounding-Board for Pianos, of which the following is a specification:

My invention relates to a new and improved cast-metal frame for pianos, the object being to secure greater strength and rigidity than heretofore presented in such metal frames, and to produce a metal frame free from "blow-holes," and other imperfections, so as to secure great rigidity, and, by such, a greater degree of elasticity, whereby is secured a more resonant and clearer tone.

The metal frames hitherto employed have been formed of ordinary cast-iron, and have been found objectionable and deficient in strength, and by such deficiency impair the proper clearness of tone and musical qualities. Besides, when formed of ordinary cast-iron, as in the usual manner, it is almost impossible to make them homogeneous and free from inequalities or "flaws," which interfere with the vibrations when the frame is placed in position in the piano, and impair the tone of the instrument.

My invention is designed to be applied to all classes of pianos; and it consists of a metal frame formed of "high steel," as will be hereinafter described.

In order to obtain a perfect metal frame, I have found it necessary to employ high steel for the construction of the same, as "low steel" resembles the ordinary cast-iron in nature, and is liable to the same objections. It does not run freely in the molds, and is liable to form inequalities or flaws when cast, resulting in "knobs" and other irregularities, which will lessen the strength of the frame, and interfere with the tone of the frame when applied to the instrument.

Referring to the accompanying drawing, Figure 1 illustrates the iron frame of a piano. Fig. 2 represents a longitudinal section of the same.

In carrying out my invention, I cast the frame in the manner well known to founders and others skilled in the art of molding metals, proceeding in the same manner as pursued in making the ordinary cast-iron frame, but using molten high steel in the place of the cast-iron. The castings will be made in molds made in green sand, as will be readily understood by skilled persons, or in molds that have been prepared and baked, when it is desired to form a more perfect and finished casting.

The frames, after being cast and properly dressed and finished in the ordinary way, are to be applied to the instrument or mounted in the same manner as the ordinary cast-iron frame in general use.

By my invention I can produce a metal frame of less thickness and weight than heretofore used, and can, with certainty, produce each frame of a proper density throughout, and have them free from all blow-holes, knobs, flaws, and other projections, and by such freedom am enabled to secure a high degree of elasticity, whereby is accomplished a more resonant and clearer tone.

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

As a new article of manufacture, a metal frame for pianos made of high steel, as herein described, for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand.

JAMES E. ATWOOD.

Witnesses:

JAMES L. NORRIS,  
ALBERT H. NORRIS.