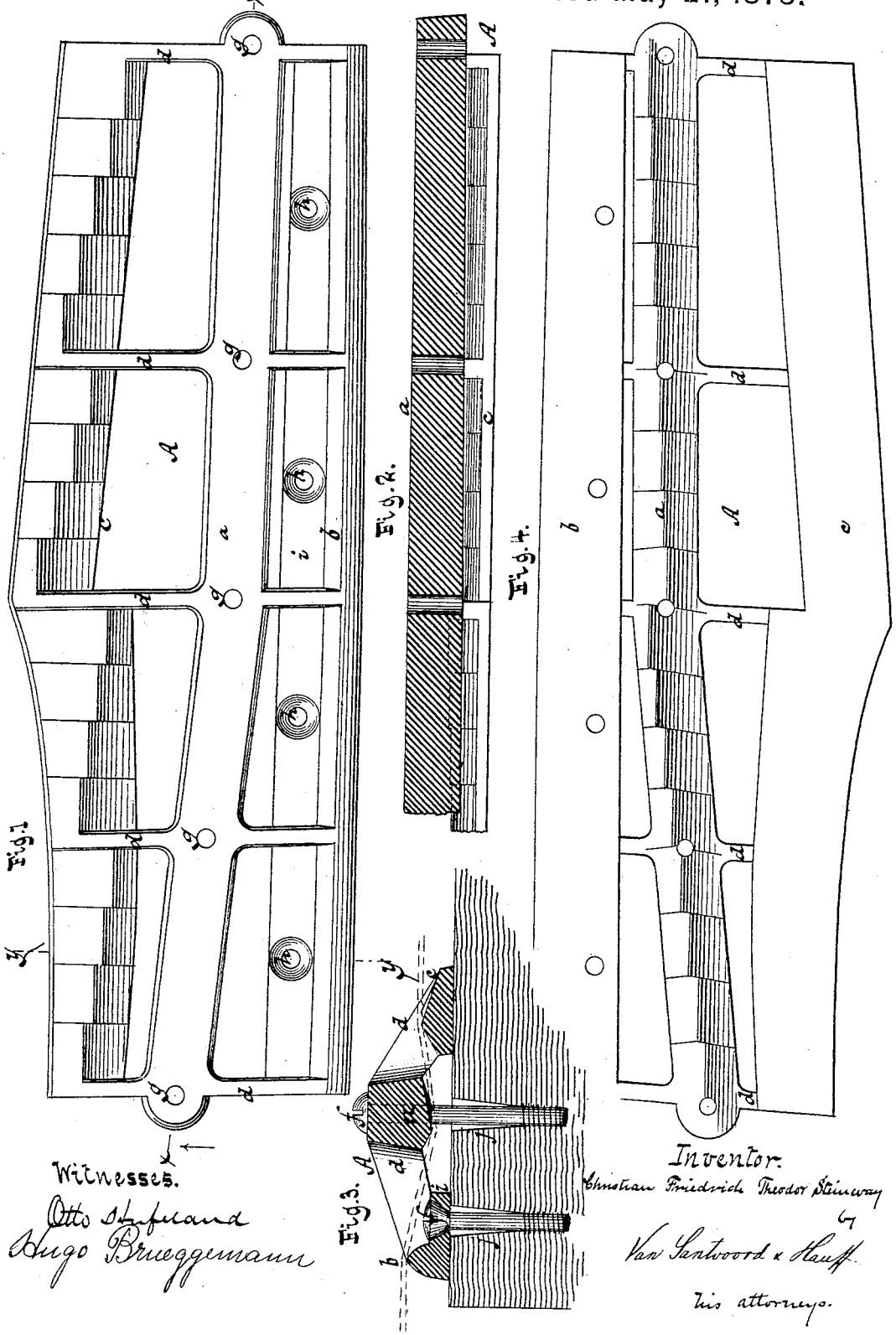
3 Sheets—Sheet 1.

C. F. T. STEINWAY.

Capodastro Frame for Piano-Fortes.

No. 204,111. Patented May 21, 1878.



Witnesses.
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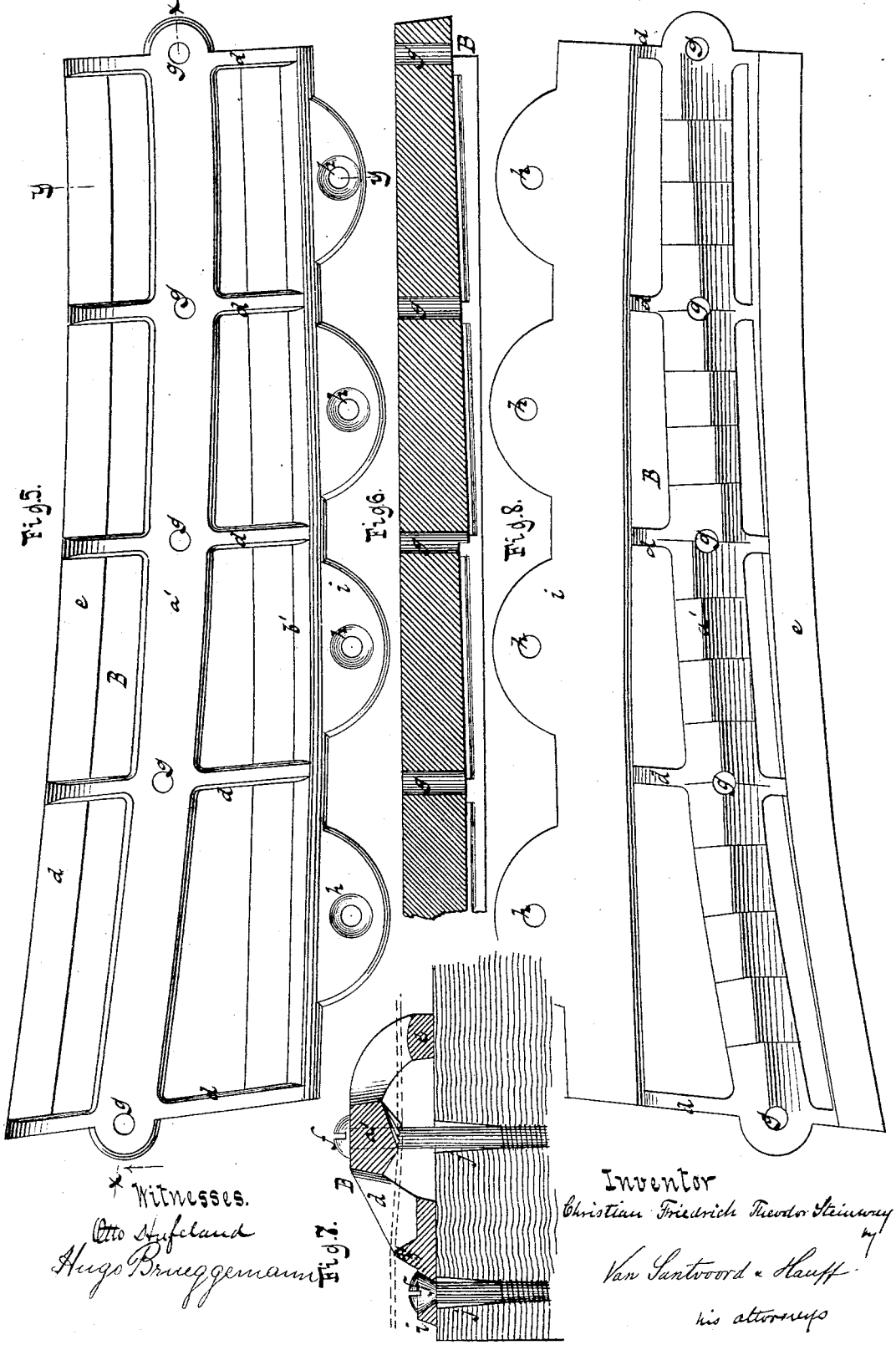
3 Sheets—Sheet 2.

C. F. T. STEINWAY.

Capodastro Frame for Piano-Fortes.

No. 204,111. Patented May 21, 1878.



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C. F. T. STEINWAY.

Capodastro Frame for Piano-Fortes.

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Fig 9

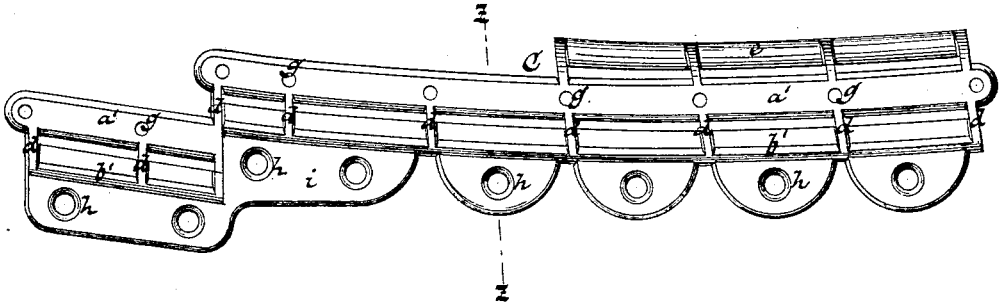
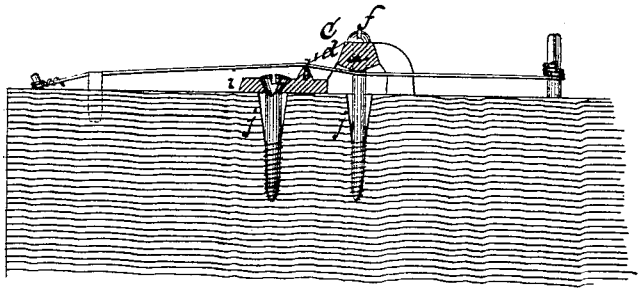


Fig. 10



Witnesses

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UNITED STATES PATENT OFFICE.

CHRISTIAN F. T. STEINWAY, OF NEW YORK, N. Y.

IMPROVEMENT IN CAPODASTRO-FRAMES FOR PIANO-FORTES.

Specification forming part of Letters Patent No. **204,111**, dated May 21, 1878; application filed March 1, 1878.

To all whom it may concern:

Be it known that I, CHRISTIAN FRIEDRICH THEODOR STEINWAY, of the city, county, and State of New York, have invented a new and useful Improvement in Capodastro-Frames for Piano-Fortes, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan or top view of the upper or treble section of my capodastro-frame. Fig. 2 is a longitudinal vertical section in the plane *x x*, Fig. 1. Fig. 3 is a transverse section of the same in the plane *y y*, Fig. 1. Fig. 4 is an inverted plan of the same. Fig. 5 is a plan or top view of the middle section of my capodastro-frame. Fig. 6 is a longitudinal vertical section in the plane *x' x'*, Fig. 5. Fig. 7 is a transverse section in the plane *y' y'*, Fig. 5. Fig. 8 is an inverted plan of the same. Fig. 9 is a plan or top view of the lower section of my capodastro-frame. Fig. 10 is a transverse section in the plane *z z*, Fig. 9.

Similar letters indicate corresponding parts.

This invention consists in a capodastro-frame provided with one up-bearing and two down-bearing strips, which are connected by cross-ribs and all cast in one piece, the distances between the up and down bearings provided by said bearing-strips being aliquot parts of the effective length of the corresponding strings, so as to bring those portions of each string which are situated between the up-bearing strip and the two down-bearing strips of the capodastro-frame in harmony with the main portion of said string, or, in other words, to form a triplex scale on the principle of the duplex scale described in my Patent No. 126,848. The screws which secure my capodastro-frame to the wrest-plank are so placed that each screw has to sustain its uniform portion of the strain of the strings, and the screw-holes in the wrest-plank are enlarged toward their outer ends, so as to allow the wood, as it swells or shrinks, to move under the capodastro-frame.

In the drawings, the letter A, Figs. 1 to 4, inclusive, designates the upper section of my capodastro-frame, which consists of an up-bearing strip, *a*, two down-bearing strips, *b c*, and of a series of cross-ribs, *d*, which form the connection between the several bearing-strips, and which, together with said strips, are all cast in one piece. The distances *a b*, Fig. 3, between the up-bearing strip *a* and the down-bearing strip *b*, and also the distances *a c* between the up-bearing strip *a* and the down-bearing strip *c*, form aliquot parts of the main scales of the corresponding strings, so that the parts *a b* and *b c* of each string are in harmony with the main portion of said string, and thereby a triplex scale is formed on the principle described in my Patent No. 126,848, dated May 10, 1872. This arrangement is of particular value for the treble strings, so as to avoid disharmonic sounds; but, if desired, the triplex scale may be extended to the middle-scale strings also. The bearing-surface of the up-bearing strip *a*, and also that of the down-bearing strip *c*, is made in the form of a series of steps, each step being intended for the strings of one note.

The middle section B, Figs. 5 to 8, inclusive, is constructed with an up-bearing strip, *a'*, a down-bearing strip, *b'*, a supporting-strip, *e*, and a series of cross-ribs, *d*, all cast in one piece.

By referring to Fig. 7 it will be seen that the supporting-strip *e* does not come in contact with the strings; but the distance *a' b'*, between the up-bearing strip *a'* and the down-bearing strip *b'*, is an aliquot part of the main scale for each string, so as to produce the duplex scale described in my Patent No. 126,848.

The lower section C, Figs. 9 and 10, is formed partly in the same manner as the middle section B; but in a portion of this lower section the supporting-strip *e* is omitted, and the capodastro-frame is composed only of the up-bearing strip *a'*, the down-bearing strip *b'*, and the cross-ribs *d*. In this section of my capodastro-frame, the distance *a' b'*, between the up-bearing strip *a'* and the down-bearing strip *b'*, has no particular relation to the main scale.

My capodastro-frame is secured to the wrest-plank by means of screws *f*, which pass through holes *g* formed in the up-bearing strips *a a'*, and through holes *h* formed in flanges *i*, con-

nected to the down-bearing strips *b b'*, and projecting either inwardly, as shown in Fig. 1, or outwardly, as shown in Figs. 5 and 9.

The screw-holes *g* and *h* in each section of my capodastro-frame are so located that each screw has to sustain the strain of the strings of two notes, and the holes *j* in the wrest-plank which receive the screws are enlarged toward their outer ends, so that the wood as it swells and shrinks can move beneath the capodastro-frame without disturbing the dimensions of the scale.

I am aware that metallic bearing-bars have been screwed on the wrest-plank in sections, each bearing-bar being provided with three ridges, the outside ridges forming down-bearings, while the middle ridge is provided with a series of holes for the passage of the strings, so as to form up-bearings for said strings. Such bearing-bars are expensive to make, since the holes in the middle ridge have to be bored with great care; and, furthermore, the operation of introducing the strings is tedious.

My capodastro-frame is ready for use as it comes from the foundry, and the up and down bearings are so arranged in relation to each other that the strings can be introduced without any difficulty or loss of time.

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

1. A capodastro-frame provided with one up-bearing and two down-bearing strips, which are connected by cross-ribs, all cast in one piece, the distances between the up and down bearings provided by said bearing-strips being aliquot parts of the effective length or main scale of the corresponding strings, thus forming a triplex scale, substantially as set forth.

2. The combination, with a capodastro-frame composed of an up-bearing and of one or more down-bearing strips and cross-ribs, of screw-holes in the up-bearing strip, and in a flange connected to one of the down-bearing strips, said screw-holes being so distributed that each screw has to support the strain of the strings of two notes, substantially as described.

3. The combination, with a capodastro-frame and with the wrest-plank to which the same is to be secured, of screw-holes which are enlarged toward their outer ends, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 26th day of February, 1878.

C. F. THEODOR STEINWAY. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.