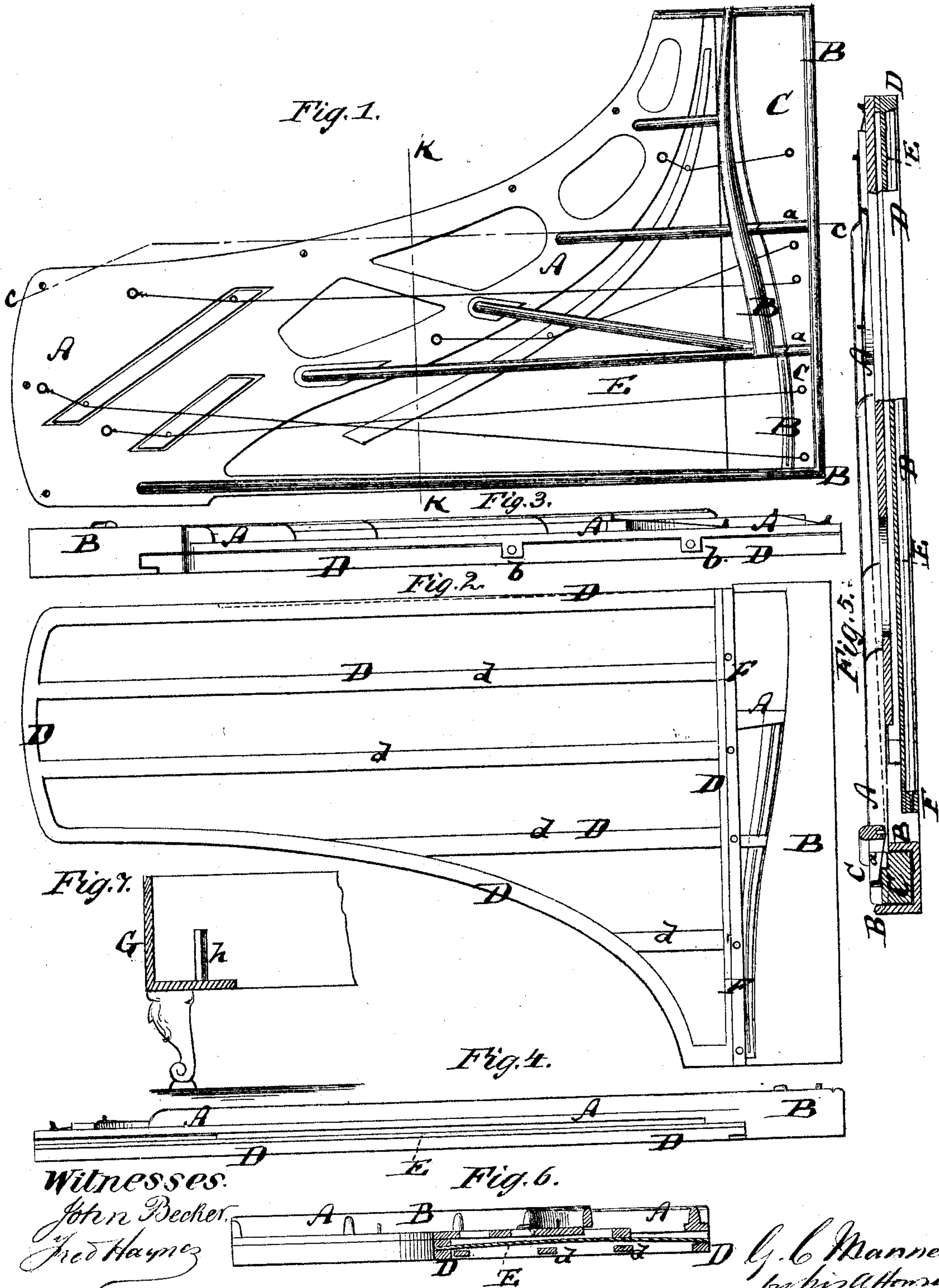


G. C. MANNER.
Pianos.

No. 141,152.

Patented July 22, 1873.



Witnesses:
John Becker.
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UNITED STATES PATENT OFFICE.

GEORGE C. MANNER, OF NEW YORK, N. Y.

IMPROVEMENT IN PIANOS.

Specification forming part of Letters Patent No. **141,152**, dated July 22, 1873; application filed April 17, 1873.

To all whom it may concern:

Be it known that I, GEORGE C. MANNER, of the city, county, and State of New York, have invented an Improvement in Grand and Square Pianos, of which the following is a specification:

This invention has for its object to increase the strength and durability of grand and square piano frames, and at the same time to reduce the amount of material employed therein to its minimum extent, in order to economize material and labor, and reduce the expense of the finished article, and still produce a better instrument than could be done by the more cumbersome means heretofore used. My invention consists principally in so combining the metal frame of the piano with the sounding-board that the said parts will be intimately connected to constitute one compact structure when united. This is obtained by making the metal frame with side flanges, to which the sounding-board is secured by suitable fastening devices. At the same time the metal frame is provided with a recess at its front end for receiving the wrest-plank, and with projecting hitch-pins at or near its back for receiving the back ends of the strings. When the strings are stretched between the hitch-pins on the frame and the tuning-pins on the wrest-plank, the metal frame, sounding-board, wrest-plank, and the strings will be firmly united, and will constitute, without further support, a compact structure, which does not depend for its strength or durability upon the embracing frame-work of the piano. My invention also consists in providing removable clips or bars, which are to be used in conjunction with the aforementioned recess above the wrest-plank, when the same is inserted from the top into said recess, for holding the wrest-plank in position, and still permitting its removal. Thirdly, my invention consists in providing beneath the sounding-board, as an additional strengthening device, a wooden frame, which is rigidly connected with the metal frame, and adds greater strength to the aforementioned structure. Finally, my invention consists in lining the front edge of the aforementioned lower wooden frame with a transverse bar or rod, which may also constitute part of the metal frame, or be separately ap-

plied, and which serves to support the front end of the sounding-board, and to give rigidity to the aforementioned wooden frame.

In the accompanying drawing, Figure 1 represents a plan or top view of the metallic frame and wrest-plank, showing the several strings in position. Fig. 2 is a bottom view of the lower wooden frame, and of the box containing the wrest-plank. Figs. 3 and 4 are edge views, seen from opposite sides, of such frames. Fig. 5 is a longitudinal section on the line *c c*, Fig. 1. Fig. 6 is a transverse section on the line *k k*, Fig. 1; and Fig. 7, a detail sectional view of the outer piano-case, showing how the aforementioned frames can be supported thereon.

Similar letters of reference indicate corresponding parts in the several figures.

The letter A represents the metal frame of the piano—that is to say, the frame which constitutes the support of the strings, wrest-plank, sounding-board, &c. This frame is in every respect made of suitable shape and size, but has at its front end a box, B, formed on it for the reception of the wrest-plank C. This box is cast in one piece with the frame A, at least preferably so, and is closed or partly closed at the bottom to support the wrest-plank; also closed at the sides and ends to keep it in place, and partly closed on top by pieces *a a*, which are removable, and form extensions of two or more of the bars or braces of the frame A, as is clearly shown in Fig. 1. These clips or pieces are removed before the wrest-plank is introduced, and are afterward put in place, and may, if desired, be fastened, by screws or otherwise, to the metallic frame, although such special fastening is not necessary, the tension of the piano-strings always serving to so affect the frame A, however strong it may be, as to hold such clips firmly in their place.

Whenever it is desired to introduce the wrest-plank from below, or at one side or end, the bottom of the box B is made removable, and the clips *a* are in that case not made removable. By means of screws, projecting lugs *b*, and otherwise is fastened to the under side of the frame A a lattice-frame, D, of wood or equivalent material. This lattice-frame is open in the middle, except where it contains a series of longitudinal bars, *d d*, which are clearly

shown in Fig. 2. At the sides and ends the frame D extends (although not necessarily at all places) up to the frame A, to connect with and serve to directly support the sounding-board E. The frame D may at times be dispensed with, at least as far as its inner slats *d d* are concerned, in which case the sounding-board is fastened to the downwardly-projecting flanges of the frame A, or so connected with the under side of the frame A that its fastening devices will be the grooves of the present rim of the frame A D. Therefore the frame D may be retained as a fastener for the sounding-board, as far as its rim or outer part is concerned, and the slats *d* may be dispensed with; or downwardly-projecting flanges, lugs, or fastening devices may, in place of the frame D, be formed on or otherwise fastened to the under side of the frame A. It will be noticed that by this construction I attach the sounding-board, under all circumstances, firmly to the under side of the metal frame A, while heretofore the sounding-boards were invariably secured to the embracing case or frame-work of the piano-forte, which made it, of course, impossible to combine the parts which constitute the interior of the piano into one structure, as is done by my invention. The bars *d* do not reach up to the sounding-board, as will be understood by reference to Fig. 5. These bars serve, therefore, as supports for counteracting the tension of the strings of the piano, and aid in keeping the sounding-board and frame A in position. The front edge of the frame D is lined with a transverse metal bar, F, which may be a part of the cast frame A or a separate piece, and which is held in place by screws or otherwise, serving to steady and hold straight the front edge of the frame D, and also to support the front end of the sounding-board.

The parts thus far described, when connected with each other and with the strings of the piano, constitute the inner part of the piano,

with the exception of the action. They are all intimately connected with each other, can be readily handled, transported, &c., and fitted into a piano-case, G, Fig. 7, without necessitating such case to be of cumbersome construction or closed at the bottom. In fact, by merely forming in line with the legs of the piano-case and at other convenient places projecting lugs *h h* for the combined frame A D to rest upon, all the requisite support will be furnished, and I am enabled to make the case G very light, in the form of a mere ornamental shell, perforated, if desired, or of metallic lattice-work, or otherwise, and entirely open at the bottom, thus reducing the weight and expense of and the labor on the instrument, and producing it in more serviceable shape than it was ever before produced. It is clear the tone and sound will be better by having the case open at the bottom than by closing it as hitherto in all square pianos.

I claim as my invention and desire to secure by Letters Patent—

1. The metal frame A, sounding-board E, and wrest-plank C, when said parts are combined and arranged substantially as described.

2. The movable pieces or clips *a*, arranged in combination with the wrest-plank C and box B of the metal piano-frame A, substantially as described.

3. The wooden frame D, containing the slats *d*, and combined with a metal frame, A, and sounding-board E, the latter being arranged between the frames A and D, substantially as specified.

4. The transverse bar F, applied to the front edge of the frame D, in combination with the frame A and sounding-board E, as set forth.

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Witnesses:

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