S. W. CLARK.

PIANO SWELL.

APPLICATION FILED JAN. 21, 1909.

950,276.

Patented Feb. 22, 1910.

2 SHEETS—SHEET 1.

Fig. 1,

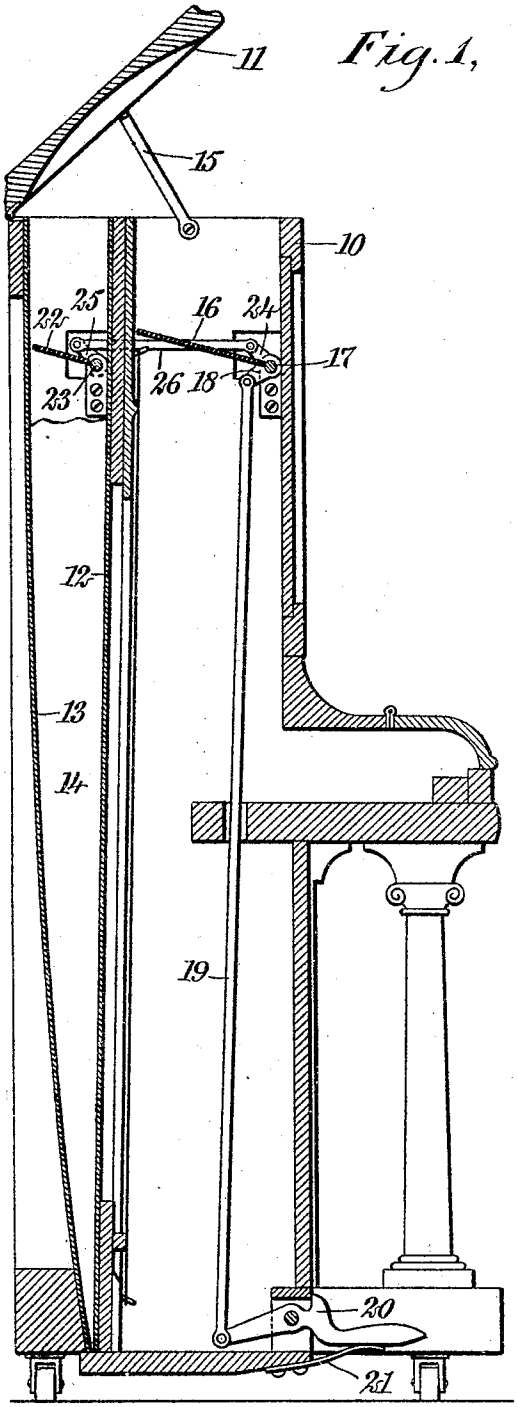
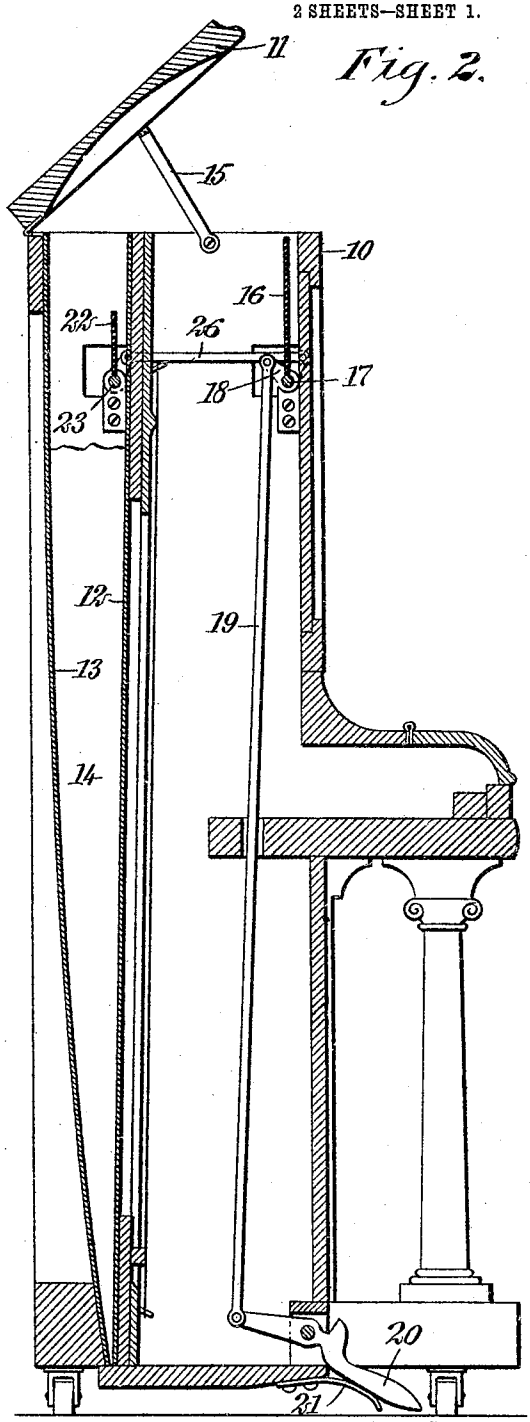


Fig. 2.



WITNESSES

Edward Thorpe.

C. W. Fairbank

INVENTOR

Sarah Wood Clark

BY Munn & Co

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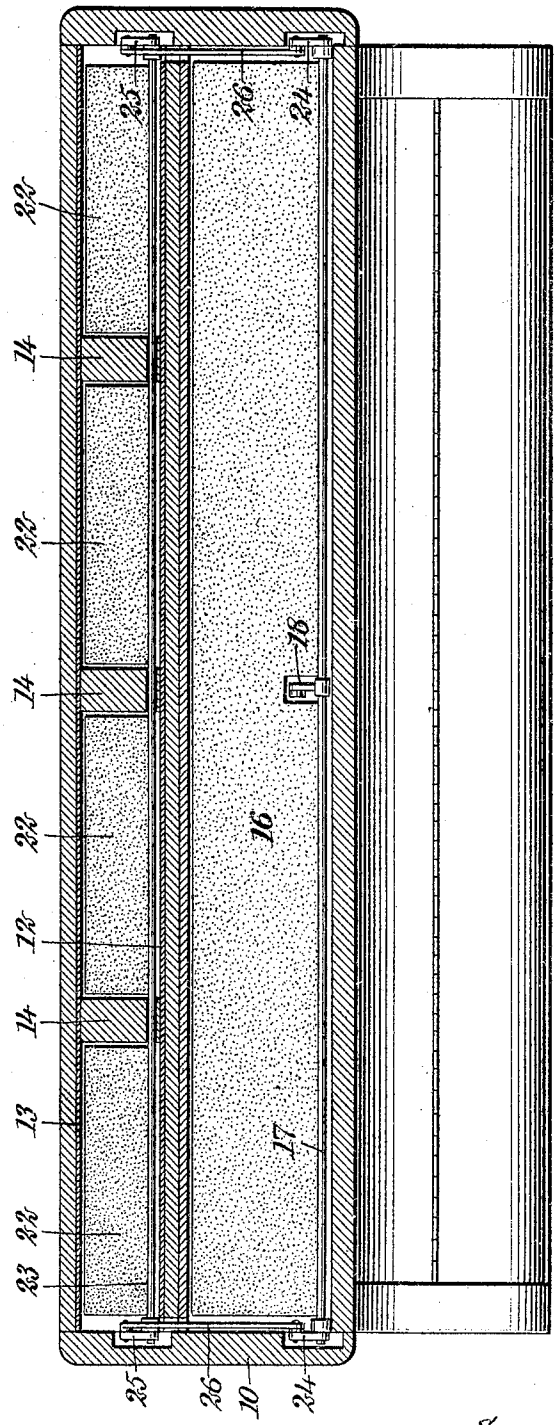

Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

SARAH W. CLARK, OF NEW YORK, N. Y.

PIANO-SWELL.

950,276. Specification of Letters Patent. Patented Feb. 22, 1910.

Application filed January 21, 1909. Serial No. 473,484.

To all whom it may concern:

Be it known that I, SARAH WOOD CLARK, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Piano-Swell, of which the following is a full, clear, and exact description.

In my previous patent No. 888,307, issued May 19, 1908, I illustrate means for varying the volume of the tone of a piano or similar instrument, preferably by varying the position of the lid, so as to permit the sound to escape freely, or to muffle it, or to deflect it in the desired direction. The moving of the lid during the rendering of a composition may be very easily accomplished by the mechanism shown in said patent, and this movement of the lid fully accomplishes the objects sought, but I have found that the movement of the lid by mechanism concealed from the audience often operated to distract their attention from the music and constituted a disturbing element. To avoid this objection, I provide in my present invention, means within the casing of the instrument and entirely concealed from the audience, for controlling the volume of sound. This new mechanism is separate and distinct from the lid of the instrument and may be of a great deal lighter construction than the lid, and of a material which will operate more efficiently to deaden or absorb the sound rather than merely deflect it. By making the movable sound-controlling member of lighter material, it is evident that it may be moved by a pedal with greater ease and greater speed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which—

Figure 1 is a vertical section through a piano constructed in accordance with my invention and showing the sound-muffling members in closed position; Fig. 2 is a view similar to Fig. 1, but showing said members in open position; and Fig. 3 is a horizontal section taken in approximately the plane of the sound-muffling members.

The piano illustrated in the accompanying drawings has an open top casing 10, closed at the upper end by a lid 11, and having within the instrument the ordinary vertical sounding board 12 and a curved sounding board 13, substantially as disclosed and claimed by my prior patent No. 763,157, granted June 21, 1904. The curve of the sounding board 13 constitutes a portion of a parabola, and the two sounding boards closely approach each other at the bottom, but are spaced apart at the top. Intermediate the two sounding boards are a plurality of vertical posts or braces 14, which subdivide the space between the sounding boards into a plurality of separate compartments. The lid 11 when in its lowered position, not only closes the upper ends of all of these compartments, but also closes the compartment or chamber between the sounding board 12 and the front of the casing of the piano. The lid is preferably hinged at its rear edge and may be held in its raised position by any suitable form of brace 15.

Within the casing of the piano and below the lid 11, I provide a sound muffling plate 16, movable to a horizontal position to close the top of the chamber or compartment in front of the main sounding board 12, and this sound muffling plate is so mounted as to be readily moved to substantially a vertical position to permit the free escape of the sound from the upper end of the piano when the lid is open. The plate may be made of any suitable material, but it is preferably non-resonant and is preferably formed of a sound-deadening or muffling material. The plate may be mounted in various different ways to permit of its movement by a pedal, but preferably the plate is secured to an oscillating rod 17 journaled adjacent the front side of the casing of the piano. The rod is provided with an arm 18, the free end of which is connected by a link 19 to the inner end of a pedal 20. The pedal may be normally held in raised position by a spring 21, so that the sound muffling plate 16 will normally lie in a substantially horizontal position, but by pressing upon the pedal, the link 19 is raised to rock the rod and swing the plate to a vertical position, as indicated in Fig. 2.

In addition to the muffling plate 16, I provide a plurality of muffling plates 22, mounted in substantially the same horizontal plane as the plate 16, and disposed intermediate the main sounding board 12 and the curved sounding board 13, and intermediate the several posts, supports or braces 14. The several muffling plates 22 are mounted to operate simultaneously with the

baffle plate 16 and may be connected thereto in any suitable manner. As shown, a rod 23 extends approximately the entire length of the piano and through apertures in the posts or braces 14 adjacent the sounding board 12. All of the plates 22 are secured to this rod, and the rod is mounted to oscillate, so that the plates may occupy either substantially a horizontal position or a vertical position. The plates operate simultaneously with the plate 16 and any suitable connecting means for accomplishing this may be provided. A simple form of mechanism includes two arms 24 and 25, carried by the two rods 17 and 23, respectively, and connected together by a link 26. Thus, as the rod 17 is oscillated by the action of the pedal 20, the rod 23 will be simultaneously oscillated and all of the plates will be moved at the same time to an open position or to a closed position, or to any intermediate position desired. By moving these plates during the rendering of a composition, the volume of the sound escaping from the instrument may be controlled at the will of the musician, and independently of the keys, stops or other controlling mechanism of the isntrument. The plates are concealed from the audience, and, therefore, their movement cannot distract the attention or in any way interfere with the enjoyment of the performance.

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

1. A stringed musical instrument, comprising a casing having two substantially vertical sounding boards spaced apart to leave a chamber therebetween, and a movable member within the casing and intermediate said sounding boards adjacent one edge thereof for closing said chamber and controlling the escape of sound from said casing.

2. A stringed musical instrument, comprising a casing having a movable lid, a substantially vertical sounding board, and a movable sound-muffling plate within said casing beneath said lid and adjacent the upper edge of said sounding board.

3. A stringed musical instrument, comprising a casing having a movable lid, a substantially vertical sounding board within said casing and having chambers upon opposite sides, and two movable sound muffling plates disposed upon opposite sides of said sounding board and within said casing adjacent said lid for closing said chambers.

4. A stringed musical instrument, comprising a casing having a movable lid, a substantially vertical sounding board having chambers upon opposite sides, two movable sound muffling plates disposed upon opposite sides of said sounding board and within said casing adjacent said lid for closing said chambers and means for simultaneously actuating said boards.

5. A stringed musical instrument, comprising a casing having a movable lid, a substantially vertical sounding board having chambers upon opposite sides, two movable sound muffling plates disposed upon opposite sides of said sounding board and within said casing adjacent said lid for closing said chambers, and a pedal for simultaneously actuating said bars.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SARAH W. CLARK.

Witnesses:

CLAIR W. FAIRBANK,

JOHN P. DAVIS.