(No Model.)

E. N. OGDEN.

PIANO CASE.

No. 559,742. Patented May 5, 1896.

Fig. 4.

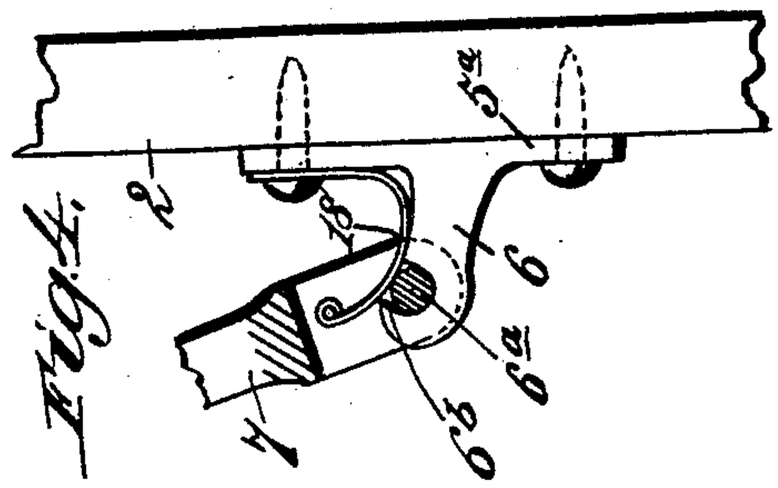


Fig. 2.

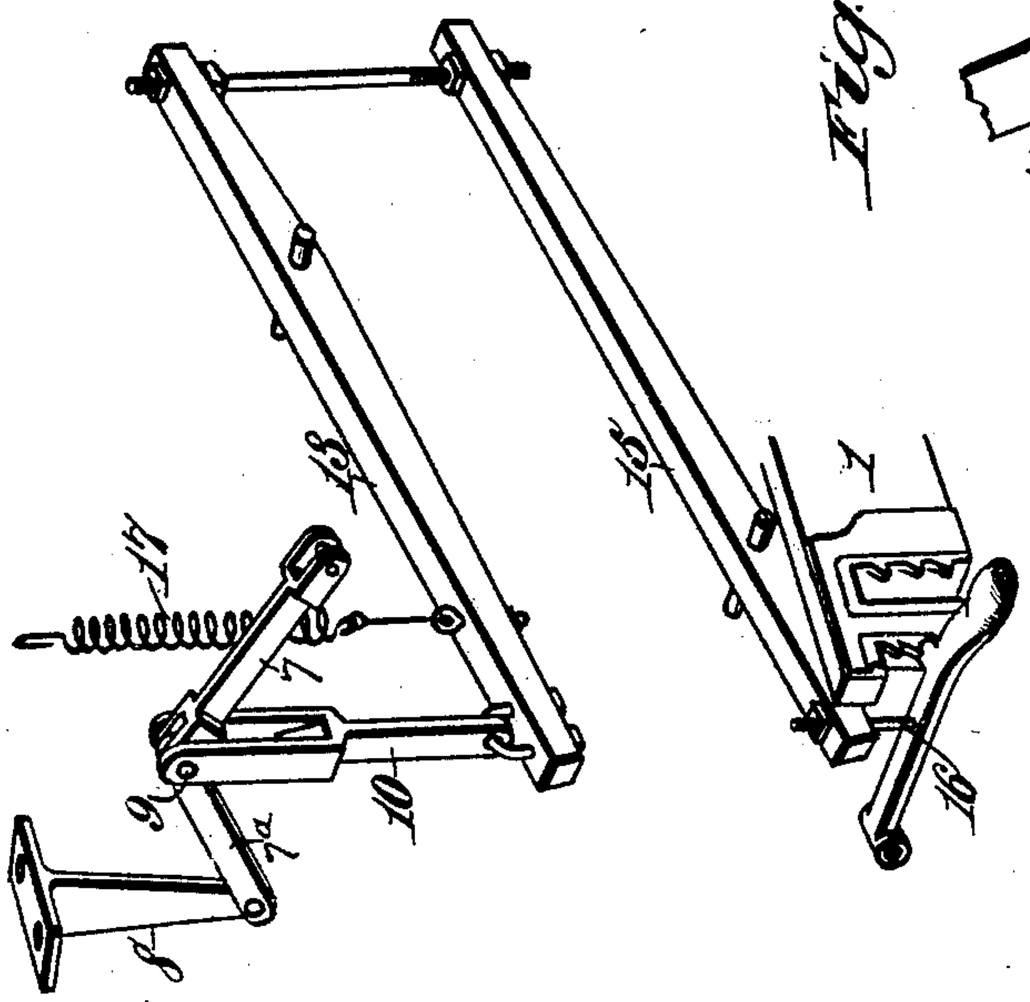


Fig. 3.

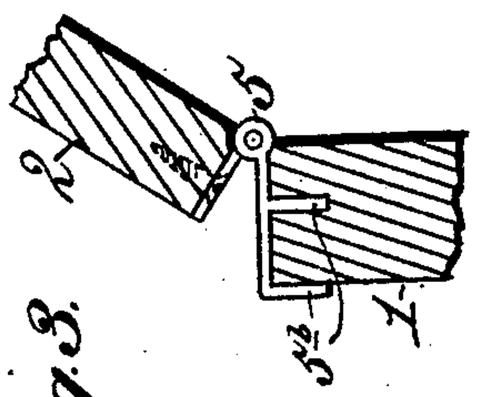
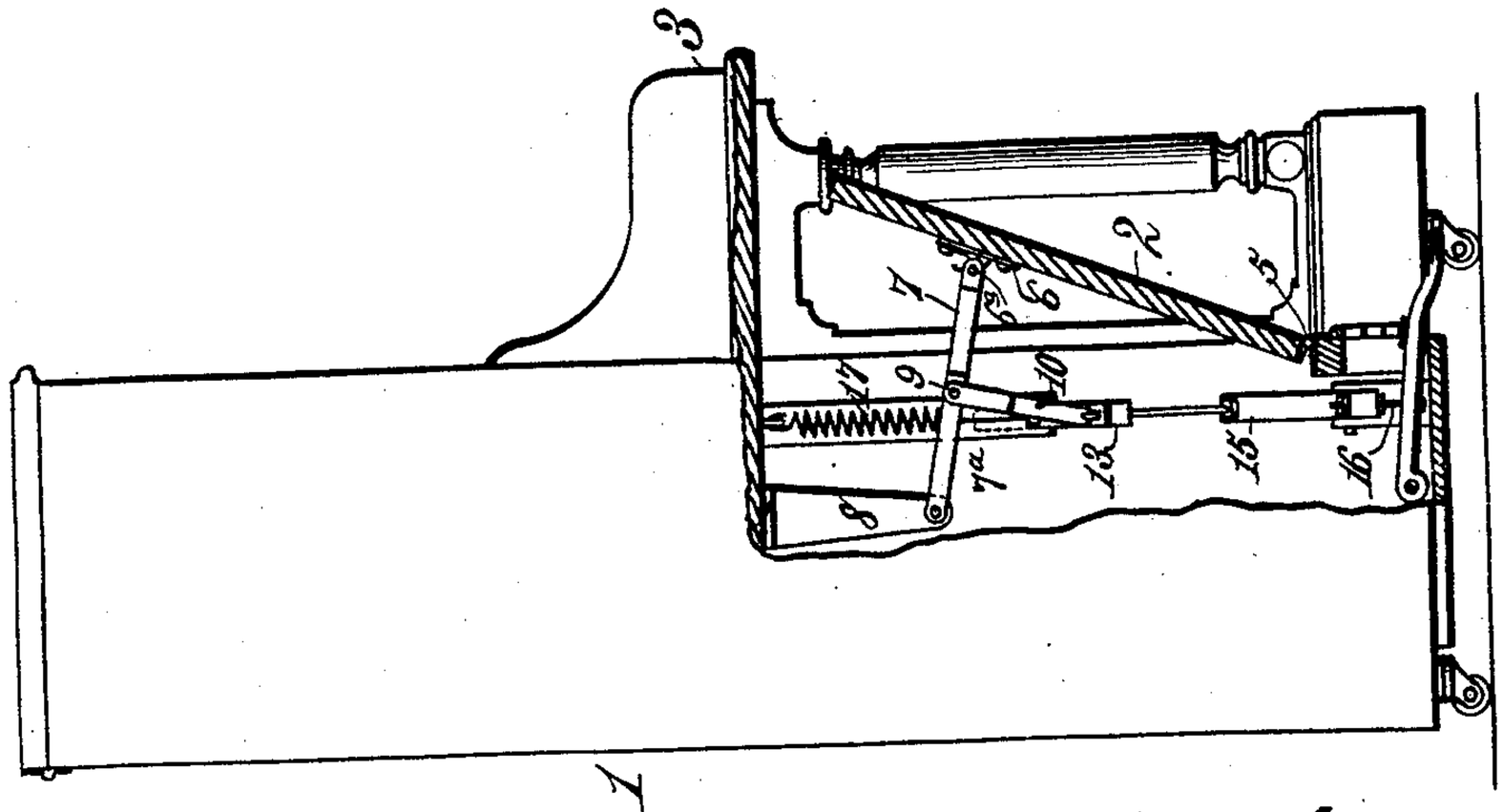


Fig. 1.



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UNITED STATES PATENT OFFICE.

ERNEST N. OGDEN, OF CHATHAM, NEW YORK, ASSIGNOR OF TWO-THIRDS TO MAY E. RIDER, OF SAME PLACE, AND MARTIN V. SPRAGUE, OF PITTSFIELD, MASSACHUSETTS.

PIANO-CASE.

SPECIFICATION forming part of Letters Patent No. 559,742, dated May 5, 1896.

Application filed June 18, 1895. Serial No. 553,232. (No model.)

To all whom it may concern:

Be it known that I, ERNEST N. OGDEN, a citizen of the United States, residing at Chatham, in the county of Columbia and State of New York, have invented new and useful Improvements in Construction of Pianos, of which the following is a specification.

My invention relates to certain improvements in the construction of pianos, my purpose being to make provision for opening and closing the lower front panel of the case at the will of the player, whereby a largely-increased volume of sound may be thrown directly out into the apartment and toward the front, instead of compelling the entire volume of acoustic vibrations to pass upward, as has been the practice heretofore, during which passage the acoustic pulsations are more or less interrupted by the keyboard, or by the action, or both, said pulsations passing out at the top of the case by partly or wholly raising the lid. It is my purpose also to combine with the lower front panel of an upright piano simple means whereby it may be thrown open to any required degree by merely manipulating one of the foot-pedals of the instrument to a greater or less degree, according to the degree to which the panel is to be opened, its closing being automatically effected by releasing the pedal, thereby enabling the performer to vary the volume of sound thrown into the apartment and thus greatly increase the facility of expression of any musical composition performed.

The invention consists, to these ends, in the several novel features of construction and new combinations of parts hereinafter fully explained, and then particularly pointed out in the claims which conclude this specification.

To enable those skilled in the art to which my invention pertains to make and use the same, I will describe said invention in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section taken from front to rear of an upright piano containing my invention. Fig. 2 is a detail view showing the pivotal connection between the panel and its operative connection, whereby said panel may be removed, if necessary. Fig. 3 is a detail section showing the construction of the hinges connecting the lower edge of the front panel to the piano-frame. Fig. 4 is a detail view showing the construction by which the toggle or other form of lever is connected pivotally to the inner face of the panel.

The reference-numeral 1 in said drawings indicates an upright piano of any ordinary construction, the numeral 2 denoting the front lower panel and the numeral 3 indicating the keyboard. These parts as well as the other portions of the structure being familiar to every person skilled in the art and being unchanged by my invention, a detailed description of the same is unnecessary for the purposes of this specification. My purpose being to enable the performer to throw the front lower panel 2 open at will and to a varying extent, I accomplish this in the manner following: I connect the lower front panel at its lower edge to the frame by hinges 5, the lower leaves of said hinges being so formed that they may be readily detached from the frame of the piano should it become necessary to remove said panel. To the inner face of the said panel, at a point below its upper edge, is attached a plate 5^a, having a lug 6, in which is formed a seat for a pivot-pin 6^a, mounted in the bifurcated end of one member, 7, of a toggle-lever, the other and similarly-formed member, 7^a, being pivotally connected to a lug 8, hanging from the lower face of the frame supporting the keyboard, as seen in Fig. 1. Between the two pivotal connections for the ends of said rod the latter is divided, and its two adjacent ends are provided with any form of bearing or lug suitable for engagement with a pivot-pin 9, upon the forked end of a connecting-rod 10, which extends downward far enough to be connected to the end of a bar 13, fulcrumed between its ends and connected at its one end to said connecting-rod and at its other end to the extremity of a second lever 15, arranged below the first lever 13, the fulcrum of the latter being near the end which is linked by a rod 16 to the end of one of the foot-pedals, preferably the central one, although I may use any other if preferred. A drawing-spring 17, connected to

the lever 13 and to the keyboard-frame, serves to break the toggle-lever by an upward movement produced by the drawing-spring 17, and thereby close the lower front panel, while by a pressure on the foot-pedal the said toggle-lever is brought into substantially a right line and the lower front panel is opened to an extent corresponding to the degree of pressure on the foot-pedal.

In order to retain the panel 2 in its open position and in any one of the different positions which vary the extent to which the front is thrown open, I provide locking projections 18 or other equivalent devices in the pedal-supporting frame, with any one of which the edge of the pedal may be engaged. By a pressure in the proper direction the pedal may be disengaged, and upon removing the pressure of the foot the spring 13 will at one close the panel.

As it may sometimes be desirable to remove the lower front panel 2, as already mentioned, I form the other pivotal connection for the rod or bar 7 in such manner that it may be readily disconnected. This construction may be of different kinds, but a simple and sufficient form is shown in Fig. 4, in which the lug 6 is provided with an open slot 6^b, in which the pivot-pin on the forked end of the rod 7 may be inserted. Said slot is overhung by a spring 18, secured to the plate carrying the lug and bearing in such direction that it will confine the pivot-pin in the slot 6^b, but permit it to be disconnected at pleasure.

The hinges 5 are each formed preferably of a leaf having such construction that it may be attached to the panel by screws or other suitable means, while the other leaf has ribs or feathers 5^b, which may both lap upon and be sunk into the wood of the frame.

Prior to my invention the front lower and upper panels and the entire inclined back of the case have been provided with "flaps" or horizontal strips resembling those used upon shutters, said flaps being connected together and automatically thrown open at the moment that the lid covering the keyboard is lifted. A pedal is also connected to the flaps in such manner that the latter can be partly or wholly closed by the player. A pedal has also been so connected to the top lid of an upright piano that said lid can be thrown open to emit the sound. I make no claim to structures of this character. They cannot accomplish the results which I seek to obtain. The flaps formed at intervals in both front and rear of the piano-casing and arranged to be normally open at all times are totally impractical and highly objectionable features. Any person having even a small knowledge of music would at once condemn such constructions. The top lid operated by a pedal is less objectionable; but it fails, nevertheless, to accomplish the results desired. All upright pianos are provided with top lids, and it is customary to open said lids and keep them open when the full power of the instrument is desired. In no instance prior to my invention has the entire lower front panel been made capable of use as a swell-panel, and in no other form of construction can the remarkable results which I secure be obtained.

What I claim is—

1. An upright piano having a lower panel, hinged at its lower edge in combination with a toggle-lever having one arm pivoted to a rigid bracket and the other arm pivoted on the panel, a pair of parallel levers one of which is connected by a link to the toggle-lever joint, and a pedal connected to the other parallel lever, whereby said panel may be opened to different degrees by pressure upon said pedal, substantially as described.

2. An upright piano having a lower front panel 2 connected to the frame by its lower edge and a pedal mechanism consisting of the lever 15, connected to the pedal, the lever 13 connected to said lever 15, and the toggle-lever 7, 7^a having its ends connected to the panel and to a rigid bracket and its joint connected to the lever 13, whereby said panel may be thrown open, when desired, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ERNEST N. OGDEN.

Witnesses:

JAMES L. NORRIS,

J. GRANVILLE MEYERS, Jr.