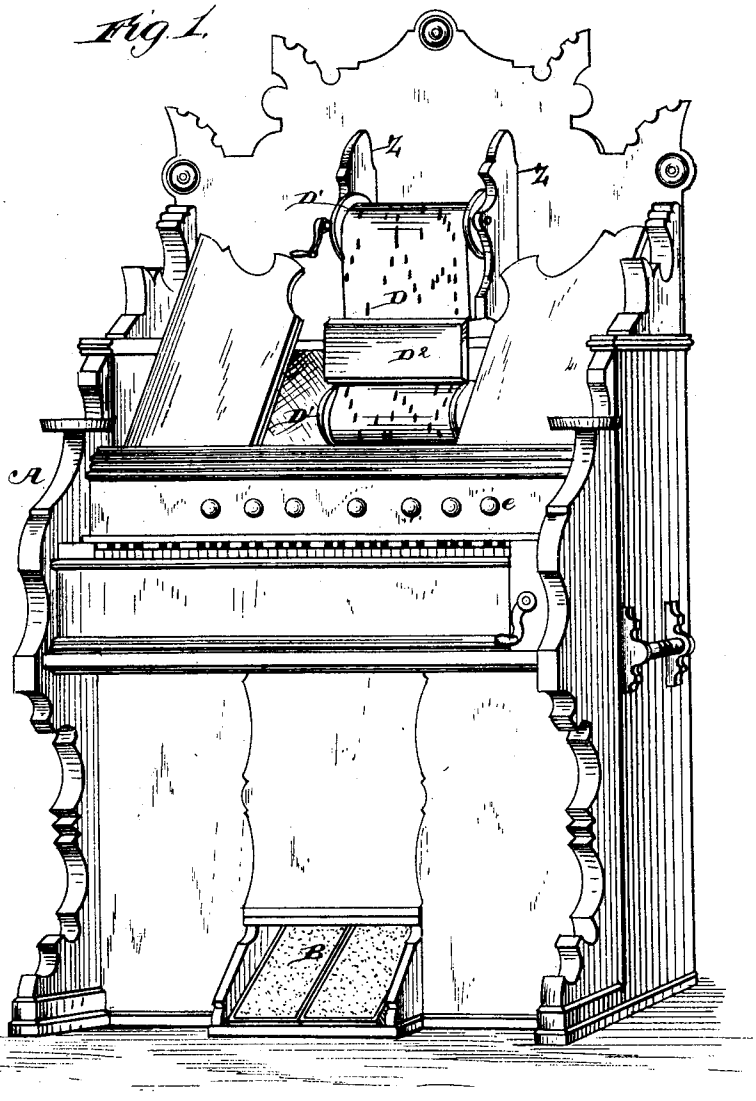
(No Model.) 2 Sheets—Sheet 1.

G. W. INGALLS.

MECHANICAL MUSICAL INSTRUMENT.

No. 256,219. Patented Apr. 11, 1882.

Fig. 1.



Witnesses.
Robert Everett
Edward G. Siggers.

Inventor.
Gustavus W. Ingalls
By W. H. Babcock
Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

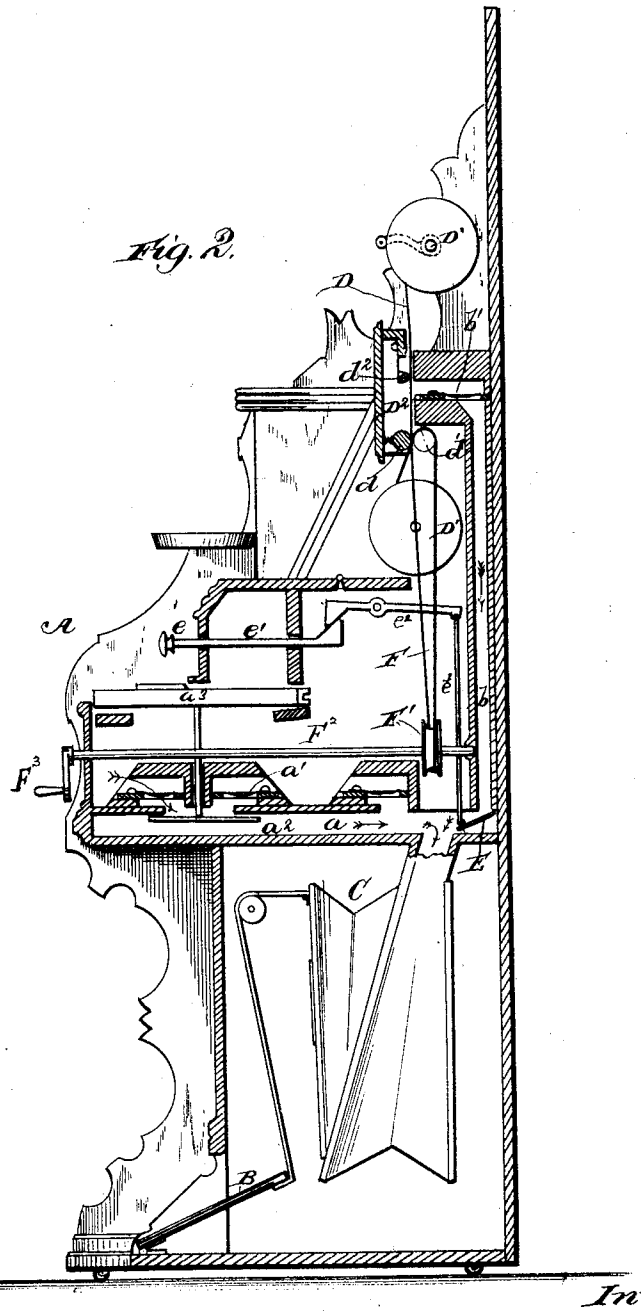
(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.



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UNITED STATES PATENT OFFICE.

GUSTAVUS W. INGALLS, OF WORCESTER, MASSACHUSETTS.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 256,219, dated April 11, 1882.

Application filed October 14, 1881. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVUS W. INGALLS, a citizen of the United States of America, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Organs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to organs which are provided with an automatic attachment which may be used concurrently with the keys or independently.

The nature of said invention consists principally in the peculiar construction, combination, and arrangement of parts hereinafter described, for the purpose of utilizing space at the back of the instrument.

In the accompanying drawings, Figure 1 represents a front perspective view of my improved instrument; and Fig. 2, a vertical section of the same from front to rear, through the center thereof.

A designates the exterior casing of the instrument, which may have any decorative finish desired.

B designates the pedals, and C the suction-bellows operated thereby. This bellows communicates at its upper end with two ducts or passages, through which the air is drawn, one of said passages extending horizontally to the front of the instrument and the other extending vertically nearly to the top of the back part of casing A.

The horizontal passage or duct *a* communicates with the reeds *a'*, preferably in three sets, and the valves a^2 of an ordinary organ-movement governed by keys a^3. The vertical passage or duct *b* communicates at its upper end with a supplementary set of reeds, *b'*, arranged in a reed-board attached to the back part of frame A. The openings of the reed-cells, through which the air is drawn to said reeds, face to the front, and over the said openings passes a music-sheet, D, which travels vertically. This music-sheet is perforated in the usual manner and acts as a valve-sheet for this upper or supplementary series of reeds and their ducts or passages. It is provided with feed-rolls *d d'*, winding-rolls D D', guide-rack D^2, and pressure-bar d^2, all operating in the manner usual with automatic musical instruments.

Communication between bellows C and reeds *b'* may be cut off or opened at will by the use of a valve, E, hung in the lower part of duct *b* and operated by stop-knob *e* and its rod *e'*, acting preferably on suitable intervening devices, as shown. When said stop-knob is pressed in so as to close said duct the automatic attachment is cut off, and the instrument operates solely as an ordinary key-organ. When said stop-knob is drawn out the automatic attachment may operate in the usual manner.

The intervening devices above referred to may consist, as shown in the drawings, of a pivoted piece, e^2, and a connecting-rod, e^3, the latter extending from the rear end of said pivoted piece to the valve E. The forward end of the said pivoted piece is weighted and beveled, so as to engage with a similarly-formed enlargement on rod *e'*. When the rod *e'* is pulled out the beveled faces of these parts engage, and the front end of piece e^2 is elevated, depressing the other end and forcing down the rod e^3, so as to open valve E. When the rod is forced in the preponderance of the weighted forward end of piece e^2 closes the valve.

The inner or driving feed-roll of music-sheet D receives rotation by means of a belt, F, from a pulley, F', on a shaft, F^2, which is shown as operated by external hand-crank, F^3, although it may be arranged to be operated by pedals B through suitable connecting-rods and a shaft.

Of course the above-described arrangements, constructions, and combinations may be greatly varied, or in some respects reversed.

I do not claim anything in the music-sheet or its operating devices, they being already old in automatic musical instruments; nor do I claim anything new in that part of the organ which is governed by the keys. I am also aware that it is not new to combine an automatic attachment with an ordinary organ operated by keys, the music-sheet being used as a valve-sheet for one set of reeds and reed-ducts.

I am aware that it is not new to combine in a single instrument an automatic organ and an organ operated by keys, these being known as "duplex instruments;" also, that it is not new to arrange the music-sheet vertically in these duplex instruments, nor to locate it in the upper part of the case. My construction, however, presents several advantages over these which have preceded it. In the first place, my music-sheet, though supported directly by the back of the case, is entirely unin-closed, so that access to it can readily be had. I journal the shafts of the winding-rolls in brackets Z Z, attached to the front of the upper part of the back of the case. These brackets offer very little obstruction to the inspection or handling of the music-sheet and the devices connected therewith, while they hold said sheet and devices in their proper place and position. There is a decided advantage in arranging the vertical passage *b* against the back of the instrument, as the back then forms one of the walls of said passage, or braces the rear wall of the same, and a greater amount of space is left available for other elements of the instrument than if said vertical passage were farther forward. The crank-shaft F^2 passes through the interior of the machine on side of the key-board, instead of going through the same or the space below it. This arrangement also leaves space available where it is most needed for other parts of the mechanism.

Having thus fully described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. In a musical instrument adapted to be operated at will, either by a key-board or a music-sheet, a pair of brackets attached to the back of the instrument, on the front face of the upper part thereof, in combination with a music-sheet and its winding-rolls supported by said brackets.

2. In a musical instrument adapted to be operated at will either by a key-board or a music-sheet, a pair of brackets attached to the back of the instrument, on the front face of the upper part thereof, in combination with a music-sheet and its winding-rolls supported by said brackets, a reed-board governed by said music-sheet, and a vertical passage leading from the bellows to the said reed-board, said passage being arranged against the back wall of the casing, substantially as set forth.

3. In a musical instrument adapted to be operated at will either by a key-board or a music-sheet, the vertical music-sheet, in combination with the casing and means for supporting said music outside of said casing, but in proximity to the back wall thereof, substantially as set forth.

4. In combination with a music-sheet and the casing and operative parts of a duplex instrument, means for supporting said sheet outside of the casing, the said means being attached to the back wall thereof.

In testimony whereof I affix my signature in presence of two witnesses.

GUSTAVUS W. INGALLS.

Witnesses:
FRANK A. BEANE,
CHANDLER P. WHITNEY.