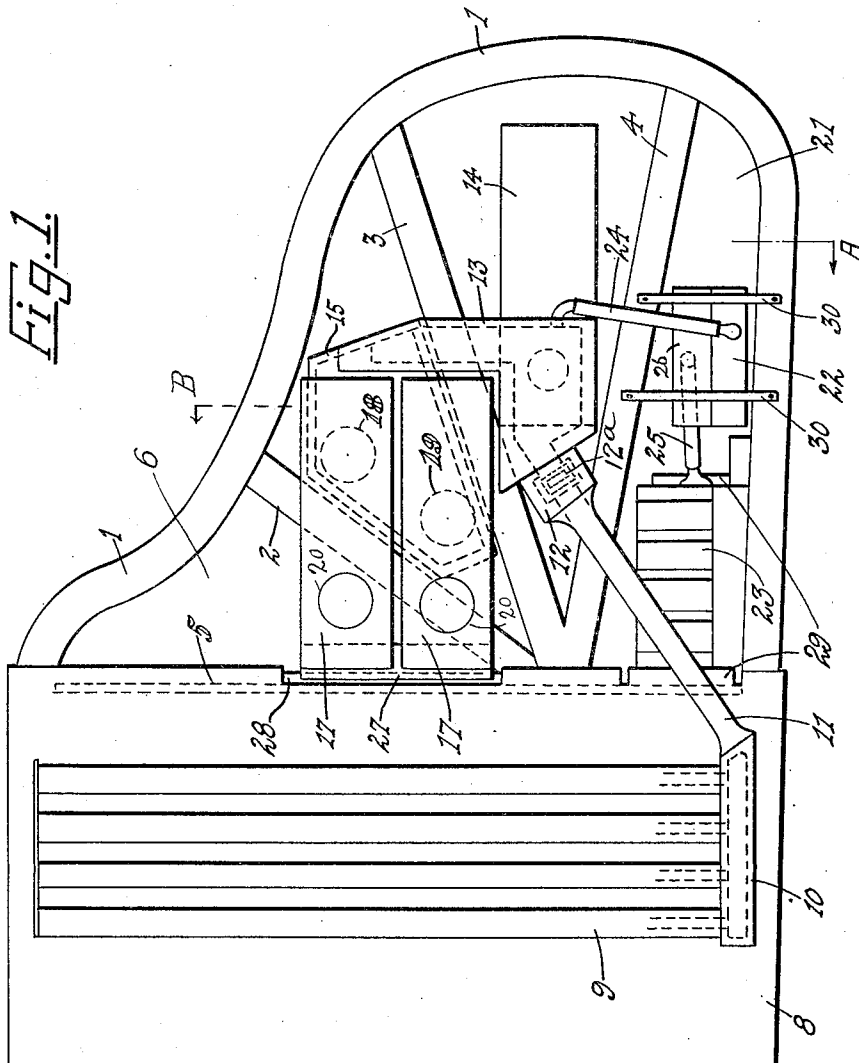


**1,102,216.**

2 SHEETS—SHEET 1.



Witnesses:  
Jacob A. Hollander  
J. W. Macy.

Inventor:  
Robt. A. Gally.

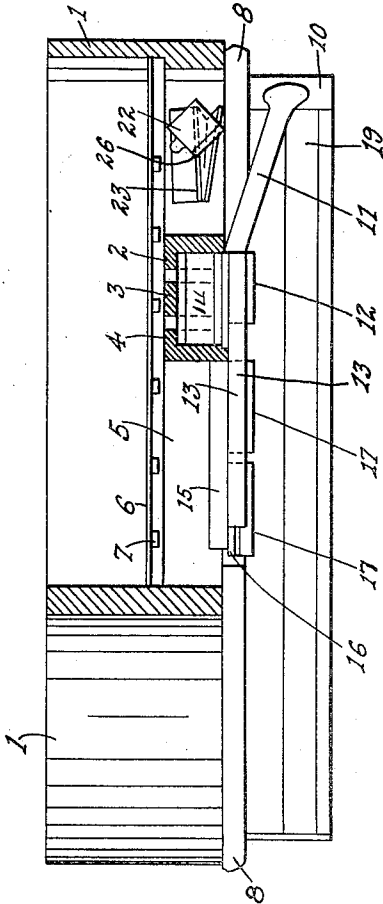
R. A. GALLY.  
PIANO PLAYING AIR SYSTEM.  
APPLICATION FILED JAN. 25, 1913.

1,102,216.

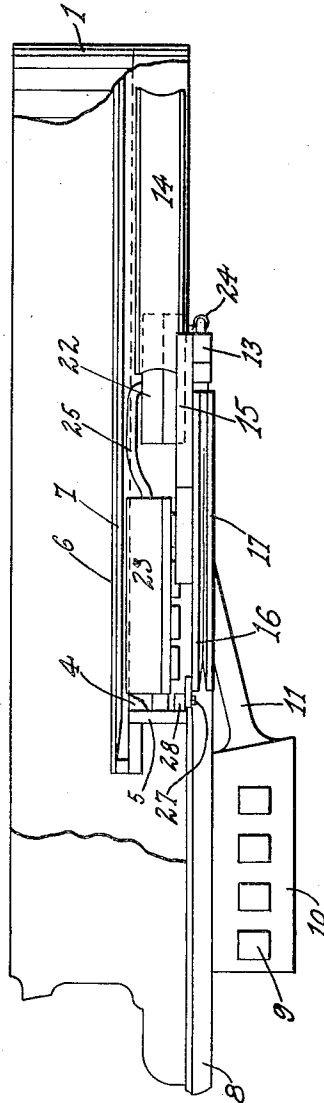
Patented June 30, 1914

2 SHEETS-SHEET 2.

*Fig. 2.*



*Fig. 3.*



Witnesses:  
Jacob A. Hollander  
J. M. Mary.

Inventor:  
Robt. A. Gally.

# UNITED STATES PATENT OFFICE.

ROBERT A. GALLY, OF CINCINNATI, OHIO, ASSIGNOR TO THE BALDWIN COMPANY, OF CINCINNATI, OHIO.

## PIANO-PLAYING AIR SYSTEM.

1,102,216.

Specification of Letters Patent.

Patented June 30, 1914.

Application filed January 25, 1913. Serial No. 744,126.

*To all whom it may concern:*

Be it known that I, ROBERT A. GALLY, a citizen of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Piano-Playing Air Systems, of which the following is a specification.

Previous arrangements of the bellows pumpers and reservoirs, cut-out valve, tempo-governor and motor, and their air-service connections, with horizontal pianos as "grands" and the like having self-playing apparatus embodied therewith, have required enlargement of the case and indirect and complicated disposition of such parts, while in the present invention the air tension inducing, conveying and controlling parts are compactly and accessibly disposed within the ordinary spaces of such a musical instrument.

In the drawings, Figure 1 is a view of the bottom of a piano case and air service parts, minor details being omitted; Fig. 2 is a view from the rear with the case rim 1 cut away at A—B, Fig. 1 and the braces 2, 3 and 4 removed up to near the cross rail 5, the parts being in correct upright position, as also are those of Fig. 3, which is a view from the right or treble side of the piano, with the rim at that side, and the braces, mostly cut away to expose the player parts which are disposed between the posts and the inside of the rim of the piano case.

The piano herein shown has a case with the usual rim 1, and several braces 2, 3 and 4 extending from the rim 1 to a cross-rail 5 to brace the instrument against the strain of its musical parts. The posts here shown are of diverging arrangement starting from a part of the cross-rail intermediate its length and spreading apart as they extend to their connection to the rim, although some pianos have separated and nearer to parallel arrangement of posts. Above the posts 2, 3 and 4 and attached to the rim 1 in usual manner is the sound-board 6 having the customary ribs 7. Under the front part of the case rim 1 is attached a keyed or table 8, to which are suspended the player action chests 9 and wind-box or end-trunk 10.

A conductor or pipe 11 connects the player action end-trunk 10 and chests 9 to the cut-out box 12 and the air-tension means of the

bellows system. This cut-out box 12 is provided with the usual valve and control not necessary to be here described, and this air connection is continued by a cross-chest 13 lying beneath and across post 3, having air opening from itself to the reservoir 14 lying between posts 3 and 4 and above their bottom lines, and also having air opening to a pumper-chest 15 lying between posts 2 and 3 and principally above their lower lines. To the lower face of the pumper-chest 15 are attached the fixed-boards 16 of the pumpers, which have their moving-boards 17 on the under faces of their fixed-boards 16, the usual inner valves 18 and 19 and outer valves 20 being provided, but with the inner valves placed at different distances from the ends of the pumper fixed boards 16 to bring them opposite to the pumper-chest 15, which is of a peculiar irregular slanted outline to enable its positioning between the slanting posts 2 and 3.

In the space 21 between post 4 and the case rim 1 at the bass side of the piano, are placed the motor-controlling tempo-governor box 22 and motor 23, hose or other air-connection 24 leading from cross-chest 13 to the tempo-governor box 22, and a similar air-connection 25 leading from the tempo-governor box 22 to the motor 23. The tempo-governor box 22 is preferably placed in slanting position with its removable face 26 accessible from below the post 2, its inner parts then being within reach and adjustment without removing the box from the piano.

The forward ends of the pumpers have their fixed-boards 16 attached to a bar 27 which is removably fastened to a cleat 28 attached to the cross-rail 5 of the case, thus insuring firm support during heavy working of the pumpers. The pumpers having their fixed-boards 16 attached to pumper-chest 15, which is joined with cross chest 13, on which reservoir 14 and cut-out box 12 are mounted, the entire combined air-tension producing means constitutes a compound-unit which may be completed and tested before placing in the piano, and be removable in assembled condition by loosening the bar 27 from cleat 28, or disconnecting any other fastenings which may be employed to support and retain this unit in place in the piano. The tempo-governor

box 22 and the motor 23 are independently and detachably secured to the piano by fastenings 29 and 30 respectively.

Various modifications may be made and yet be subject to, what I claim as my invention:

1. A horizontal piano having a case-rim, a cross-rail, and a brace extending from a position intermediate the length of said rail and rearwardly to said rim, in combination with two horizontal bellows pumpers immediately below and mainly to one side of said brace, a pumper chest attached to the upper faces of both said pumpers and at the same side of said brace as said pumpers and mainly above the bottom line of said brace, a cross-chest attached at the rear of the pumper chest and extended below and across said brace and beyond the same, and a bellows reservoir attached to the top of the said cross-chest and lying mainly above the bottom line of said post and at the side of said brace opposite to the pumper-chest.

2. A horizontal piano having a case-rim, a cross-rail, and a brace extending from a position intermediate the length of said rail and rearwardly to said rim, in combination with two horizontal bellows pumpers immediately below and mainly to one side of said brace, a pumper chest attached to the upper faces of both said pumpers and at the same side of said brace as said pumpers and mainly above the bottom line of said brace, a cross-chest attached at the rear of the pumper chest and extended below and across said brace and beyond the same, and a bellows reservoir attached to the top of the said cross-chest and lying mainly above the bottom line of said post and at the side of said brace opposite to the pumper-chest, and extended to the rear of the rearward line of said pumpers.

3. A horizontal piano having a case-rim, a cross-rail, and a brace extending from a position intermediate the length of said rail and rearwardly to said rim, in combination with two horizontal bellows pumpers immediately below and mainly to one side of said brace, a pumper chest attached to the upper faces of both said pumpers and at the same side of said brace as said pumpers and mainly above the bottom line of said brace, a cross-chest attached at the rear of the pumper chest and extended below and across said brace and beyond the same, and a cut-out box attached to said cross-chest at the side of said brace opposite to said pumpers.

4. A horizontal piano having a case-rim, a cross-rail, and a brace extending from a position intermediate the length of said rail and rearwardly to said rim, in combination

with two horizontal bellows pumpers immediately below and mainly to one side of said brace, a pumper chest attached to the upper faces of both said pumpers and at the same side of said brace as said pumpers and mainly above the bottom line of said brace, a cross-chest attached at the rear of the pumper chest and extended below and across said brace and beyond the same, and a cut-out box attached to the front of said cross-chest.

5. A horizontal piano having a case-rim, a cross-rail, and a brace extending from a position intermediate the length of said rail and rearwardly to said rim, in combination with two horizontal bellows pumpers immediately below and mainly to one side of said brace, a pumper chest attached to the upper faces of both said pumpers and at the same side of said brace as said pumpers and mainly above the bottom line of said brace, a cross-chest attached at the rear of the pumper chest and extended below and across said brace and beyond the same, and a cut-out box attached to the front of said cross-chest at the side of said brace opposite to said pumpers.

6. A horizontal piano having a case-rim, and a brace lying near to the said rim at one side of said case but with a space between said rim and brace, and an air-motor and a motor control box disposed within said space, with its main dimension in general parallel to the brace and rim, and mainly above the lower lines of said rim and brace, said box having a removable cover, said cover and the face of the box having said cover being at an acute angle to the horizontal plane of the bottom lines of said brace and rim directly below said cover and face.

7. A horizontal piano having a case-rim, and a brace lying near to the said rim at one side of said case but with a space between said rim and brace, and an air-motor and a motor control box disposed within said space, with its main dimension in general parallel to the brace and rim, and mainly above the lower lines of said rim and brace, said box having a removable cover, said cover and the face of the box having said cover being at an acute angle to the horizontal plane of the bottom lines of said brace and rim directly below said cover and face, said box being positioned with its cover face accessible from below the brace and rim.

ROBT. A. GALLY.

Witnesses:

LUCIEN WULSIN,  
J. W. MACY.