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PATENTED JUNE 23, 1908.

R. A. GALLY.  
MUSICAL DEVICE WIND INDUCING APPARATUS.  
APPLICATION FILED JAN. 6, 1908.

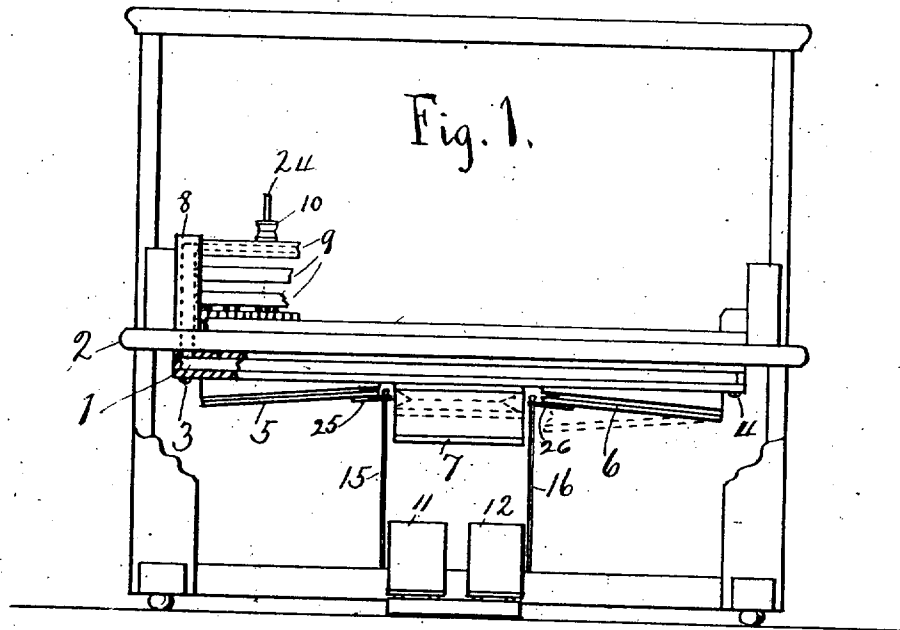


Fig. 1.<sup>a</sup>

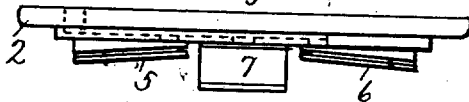


Fig. 1.<sup>b</sup>

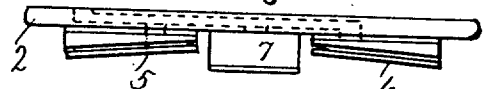
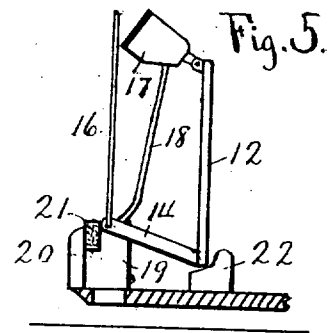
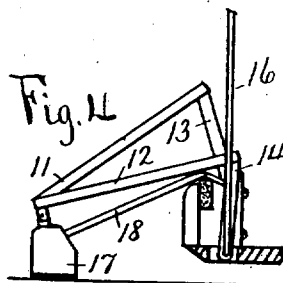
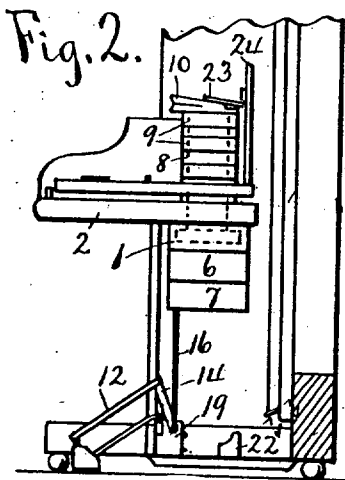
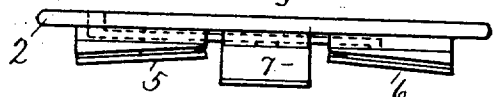
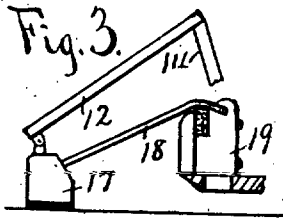


Fig. 1.<sup>c</sup>



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# UNITED STATES PATENT OFFICE.

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## MUSICAL-DEVICE WIND-INDUCING APPARATUS.

No. 891,685.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed January 6, 1908. Serial No. 409,473.

*To all whom it may concern:*

Be it known that I, ROBERT A. GALLY, a citizen of the United States, residing at Brooklyn, New York, have invented certain new and useful Improvements in Musical-Device Wind-Inducing Apparatus, of which the following is a specification.

The object of my invention is the construction of a cheap, compact, simple, direct acting and easy working and most effective wind-inducing apparatus for musical devices, it being especially useful for automatic instruments such as piano-players and player-pianos, and particularly desirable in the latter, where it leaves ample resonant space and easy access to strings and trap work.

In the drawings Figure 1 is a front view of a player-piano with my apparatus, most of the front of the piano case being removed for clear view; Figs. 1<sup>a</sup>, 1<sup>b</sup> 1<sup>c</sup>, are modified forms of wind-chest, Fig. 2 is an end view of same instrument; while Figs. 3, 4 and 5 show larger end view details of the pumper pedals and supports.

The common form of bellows heretofore used inside of pianos having an auto-pneumatic action, has been the vertical, filling up the lower part of the instrument to the injury of tone and the hindrance of access for repairs, besides having long, tortuous windways, and complicated mechanical connections for the foot power action, both the latter causing undue effort to overcome friction in operation, and preventing the sensitive control of air tension from the feet which is requisite for artistic accent and other expression.

In my apparatus, as I adapt it to a player piano, I suspend a horizontal wind-chest 1 underneath and at the back of the key-bed 2 of the piano and preferably attached by suspending means 3, 4, approximately at each end so that no strain will be exerted to spring the key-bed.

The wind-chest may be reduced to a single board with a channel grooved therein, Fig. 1<sup>a</sup>, or the wind-chest may be integral with the key bottom, Fig. 1<sup>b</sup>, or the pumbers and reservoir be separate units connected together by tubes or ducts, Fig. 1<sup>c</sup>, and yet any or all be subject to claims herein, as my invention in its broad sense relates to the general arrangement of its three principal units, the two feeders and the reservoir, and to the novel pedal structure.

Underneath the keyboard, and preferably on the under face of a wind-chest 1, are attached two pumps or so-called "feeders" 5, 6, with their hinges at their ends near to the ends of the wind-chest 1, their opening (working) ends, facing towards each other but at some distance apart, a collapsible air-tension reservoir 7 being also suspended from the wind-chest 1 intermediate the open ends of the two pumbers. The pumbers 5 and 6 and reservoir 7 each open directly into the wind-chest 1, said chest at its end connecting by a windway up through keybottom 2 to an end-trunk 8 of the actions 9, thus supplying a very direct air-service to the note-striker pneumatics as 10, insuring a prompt, sympathetic control of expression. The arrangement of this form of bellows in combination with an auto-pneumatic action in a piano is not claimed herein, being made the subject of a divisional application hereof filed Mach. 16th, 1908.

The operation of the feeders 5, 6, by foot power, is effected by pumper-pedals 11, 12, having arms 13, 14 extending down therefrom preferably at or near their outer rear corners, with holes at their lower ends into which the lower ends of pumper-rods 15, 16 are connected, the upper ends of these rods extending freely through holes in extensions 25, 26 at the working ends of pumbers 5, 6, nuts on the ends of the rods providing a free working attachment.

The pumbers 5, 6, are preferably made of diagonal "box" form so that their moving boards divide their action equally above and below the horizontal plane, thus securing an approximately straight pull from the vertical rods 15, 16. Similarly, the arms 13, 14, are preferably of a length that their holes engaging rods 15, 16, are on a level with the hinge bearings of pumper-pedals 11, 12, when said pedals, arms and rods are half-way down their stroke, thus securing an approximate straight pull on the lower ends of the rods. With this straight-line action and only two connecting centers, an exceedingly easy and noiseless foot operation is secured.

To hold the pedals 11, 12, in position for operation as in Figs. 1, 2, 3 and 4, and to enable them to be moved inside of the piano case when not in use, as in Fig. 5, a base or support 17 is used for carrying the hinges of the pedals 11, 12, this base 17 being carried by one or more swing arms 18 engaged to the

base and having pivotal bearing inside the case on block 19. The pivotal bearing on 19 is preferably approximately in horizontal line with the connecting centers of arms 13, 14, and rods 15, 16, when the pedals 11, 12, are at rest as in Figs. 1 and 2, so that when the pedals with their arms, and the base and swing-arms are all swung up and over into the case the rods 15, 16, will not cramp down or rise in the feeder extensions.

To prevent undue forward pendulum movement, or jumping of the pedal arms 13, 14, over the case rails 20, when pedals are swung into case, checks 21 are placed directly in front of and moderately clearing the arms when in action, but against which the lower ends of the arms will bear when the pedal parts are being moved into or are at rest in the case. To prevent the pedals from dropping too far when swung into case, a check-block 22, or a similar device is placed to support the pedals, the rise of the check at the rear preventing the pedals from ever jumping back against the strings of the piano.

To enable the desirable advanced position to the front of the rods 15, 16, and the swinging well into the case of the pedals 11, 12 with their base 17 and swing arms 18, the rods 15, 16 are preferably placed just outside of the outer edges of the pedals, the base is less in length than the distance between the rods 15, 16, and with swing-arms 18 placed under each pedal a little inside of the arms 13, 14, the rods 15, 16 can hang quite close to the pedals 11, 12.

The novel arrangement of power-pneumatic 10 with its open end forward, a lever 23 fixed to its moving board and extending to the rear of said board and reversing the downward stroke of the pneumatic to a direct lift on the abstract 24, is the most simple and effective arrangement of these parts yet attained, and is especially desirable with this wind-inducing apparatus, but not being claimable herein, same will be made the subject of claim in a separate application. Such separate application has since been filed, Jan. 16th, 1908, #411,118, and a division thereof Mch. 2d, 1908, #418,831.

What I claim as my invention is:

1. A wind-inducer for musical apparatus having two horizontal pumpers, a vertical actuating connection below each, and two inclined pumper pedals each having at its upper end a downwardly extending arm with a bearing at its lower part engaging the lower end of its corresponding actuating connection.

2. A wind-inducer for musical apparatus having two pumpers, a vertical actuating connection below each, and two inclined pumper pedals each having at its upper end a downwardly extending arm with a bearing at its lower part engaging the lower end of its corresponding actuating connection.

3. A wind-inducer for musical apparatus having two horizontal pumpers, a vertical actuating connection below each, two inclined pumper pedals each having at its upper end a downwardly extending arm with a bearing at its lower part engaging the lower end of its corresponding actuating connection, the pumpers each disposed in such plane that at the position of half its movement it stands substantially at right angles to the line of movement of its actuating connection.

4. A wind-inducer for musical apparatus having two pumpers, a vertical actuating connection below each, two inclined pumper pedals each having at its upper end a downwardly extending arm with a bearing at its lower part engaging the lower end of its corresponding actuating connection, each pedal having a working bearing at its front, the relative position of said pedal bearing and the arm bearing being in a line at a substantial right angle to the line of movement of the corresponding actuating connection when said pedal arm is at the position of half its actuating movement.

5. A wind-inducer for musical apparatus having two horizontal pumpers, a vertical actuating connection below each, two inclined pumper pedals each having at its upper end a downwardly extending arm with a bearing at its lower part engaging the lower end of its corresponding actuating connection, the pumpers each disposed in such plane that at the position of half its movement it stands substantially at right angles to the line of movement of its actuating connection, each pedal having a working bearing at its front, the relative position of said pedal bearing and the arm bearing being in a line at a substantial right angle to the line of movement of the corresponding actuating connection when said pedal arm is at the position of half its actuating movement.

6. An incased musical apparatus having two pumpers, each with a vertical actuating connection extending below the same, two pumper-pedals each with a downwardly extending arm having a bearing at its lower part engaging the lower end of its corresponding vertical connection, a supporting base for said pedals, and swing-means to said base with pivotal bearing inside said case, the pedals, base and swing means having their assembled width less than the distance between the two vertical actuating connections.

7. A musical apparatus having two pumpers, each with a vertical actuating connection extending below the same, and two pumper-pedals each having a downwardly extending arm adjacent its outer side and having a bearing at its lower part connected with the lower end of the corresponding vertical actuating connection.

ating connection, each said connection standing adjacent the outer side of the corresponding pedal and arm.

8. A musical apparatus having two pumpers, each with a vertical actuating connection extending below the same, and two pumper-pedals each having a downwardly extending arm adjacent its outer side and having a bearing at its lower part connected with the lower end of the corresponding vertical actuating connection, each said connection standing to the outside of the line of the outer side of the corresponding pedal.

9. A musical apparatus having two pumpers, each with a vertical actuating connection extending below the same, and two pumper-pedals each having a downwardly extending arm adjacent its outer side and having a bearing at its lower part connected with the lower end of the corresponding vertical actuating connection, each said connection standing to the outside of the line of the outer side of the corresponding pedal and its arm.

10. An incased musical apparatus having two pumpers, each with a vertical actuating connection extending below the same, two pumper-pedals each with a downwardly extending arm having a bearing at its lower part engaging the lower end of its corresponding vertical connection, a hinge supporting means for said pedals, swing-means therefrom to a pivotal bearing within the case, and a check permanent with the case immediately forward but clear of the lower part of the arm of each said pedal when they are in normal position for operation and bearing rearwardly against each said arm when the pedals are inside the case out of use.

11. An incased musical apparatus having two pumpers, each with a vertical actuating connection extending below the same, two pumper-pedals each with a downwardly extending arm having a bearing at its lower part engaging the lower end of its corresponding vertical connection, a hinge supporting means for said pedals, swing-means therefrom to a pivotal bearing within the case, and a check permanent with the case immediately forward but clear of the lower part of the arm of each said pedal when they are in normal position for operation and bearing rearwardly against each said arm when the pedals are inside the case out of use, and an under check permanent with the

case and positioned under the lower end of each pedal when in inoperative position in the case.

12. An incased musical apparatus having two pumpers, each with a vertical actuating connection extending below the same, two pumper-pedals each with a downwardly extending arm having a bearing at its lower part engaging the lower end of its corresponding vertical connection, a hinge supporting means for said pedals, swing-means therefrom to a pivotal bearing within the case, and an under check permanent with the case and positioned under the lower end of each pedal when in inoperative position in the case.

13. An incased musical apparatus having two pumpers, each with a vertical actuating connection extending below the same, two pumper-pedals each with a downwardly extending arm having a bearing at its lower part engaging the lower end of its corresponding vertical connection, a hinge supporting means for said pedals, swing-means therefrom to a pivotal bearing within the case, and an under check permanent with the case and positioned under the lower end of each pedal when in inoperative position in the case, and a rear check immediately to the rear of the lower end of each said pedal when in said position.

14. A wind-inducer for musical apparatus having two horizontal pumpers, a vertical actuating connection below each, and two inclined pumper-pedals each having at its upper end a downwardly extending arm with a bearing at its lower part engaging the lower end of its corresponding actuating connection, each said actuating connection standing outside of and adjacent to the outer edge of its corresponding pedal and arm.

15. A wind-inducer for musical apparatus having two pumpers, a vertical actuating connection below each, two inclined pumper-pedals each having at its upper end a downwardly extending arm with a bearing at its lower part engaging the lower end of its corresponding actuating connection, each said actuating connection standing outside of and adjacent to the outer edge of its corresponding pedal and arm.

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Witnesses:

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