J. A. WESER.

AUTOMATIC PIANO, &c.

APPLICATION FILED APR. 5, 1906. RENEWED OCT. 6, 1908.

907,207. Patented Dec. 22, 1908.

4 SHEETS—SHEET 1.

Fig. 1.

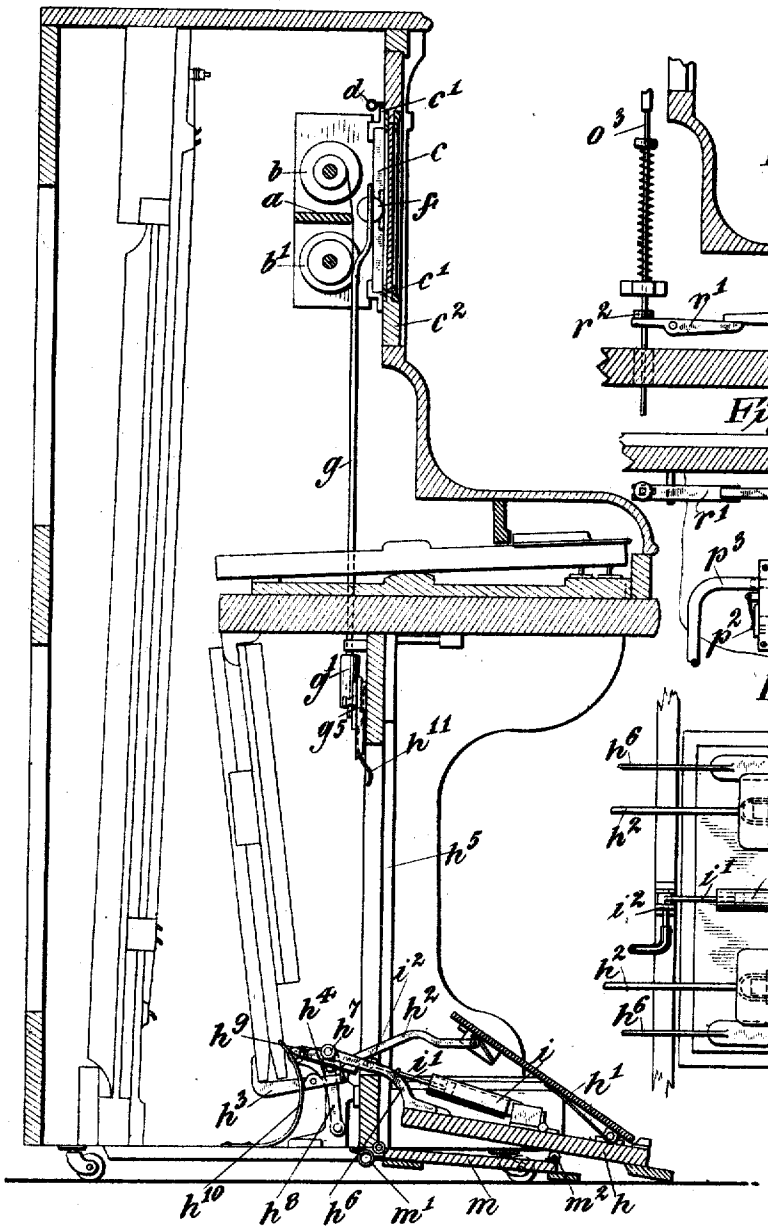


Fig. 9.

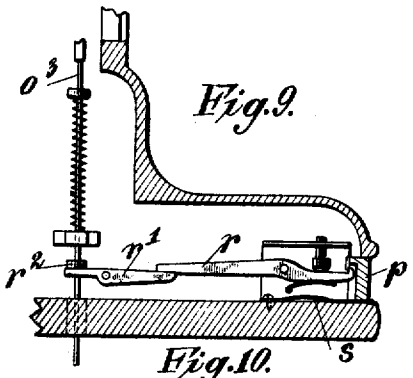


Fig. 10.

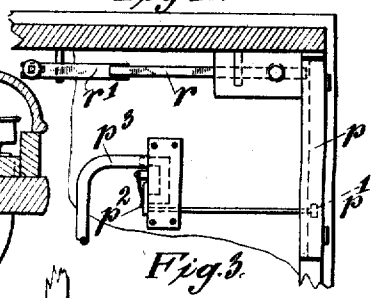
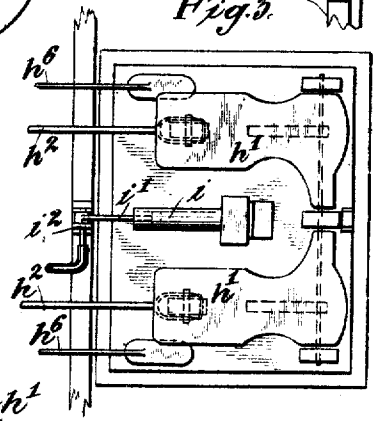


Fig. 3.



Witnesses
Geo. Schwarz.
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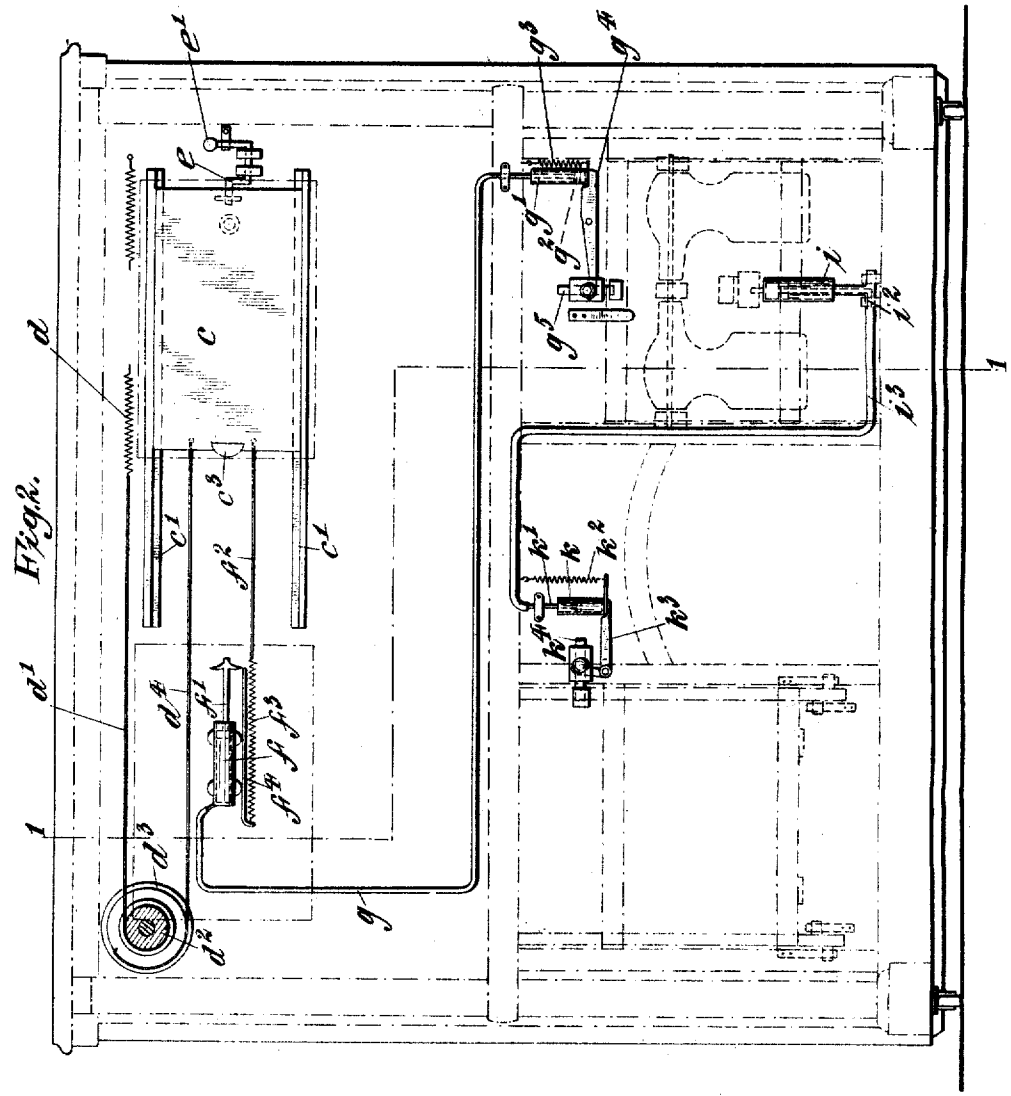
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 6.

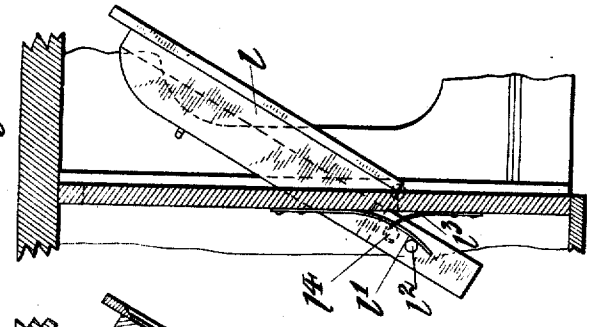


Fig. 5.

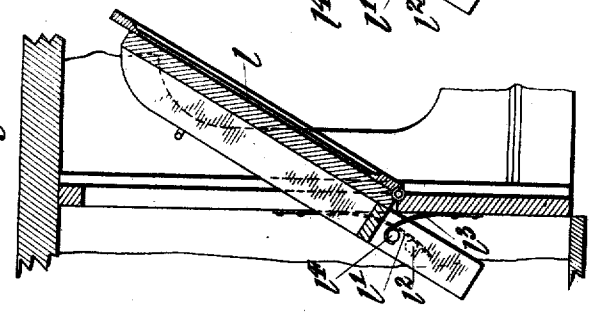
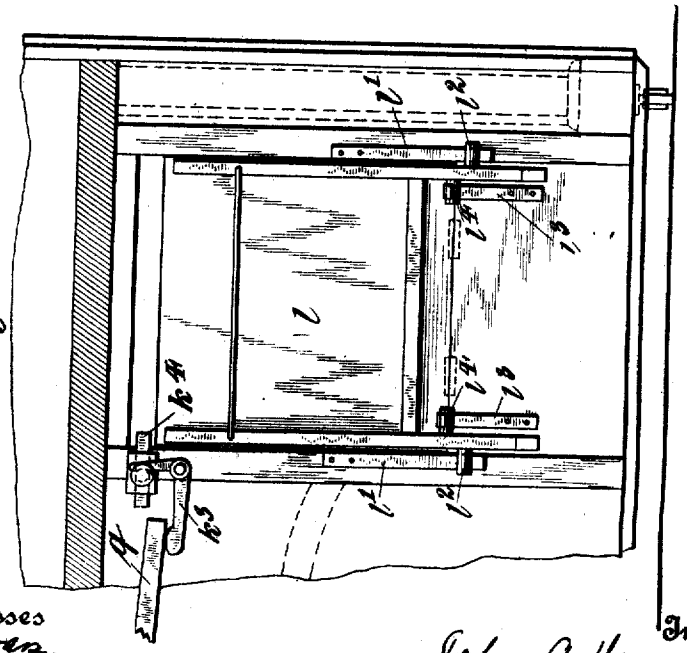


Fig. 4.



Witnesses
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AUTOMATIC PIANO, &c.

APPLICATION FILED APR. 5, 1906. RENEWED OCT. 6, 1908.

907,207.

Patented Dec. 22, 1908.

4 SHEETS—SHEET 4.

Fig. 8.

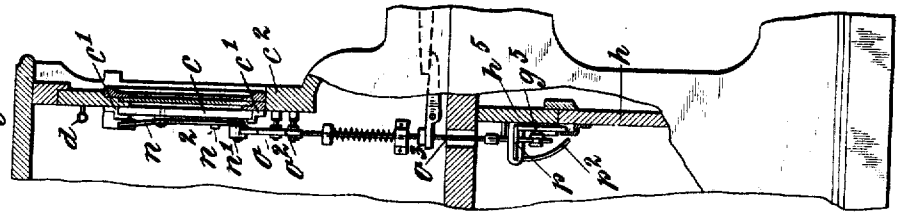
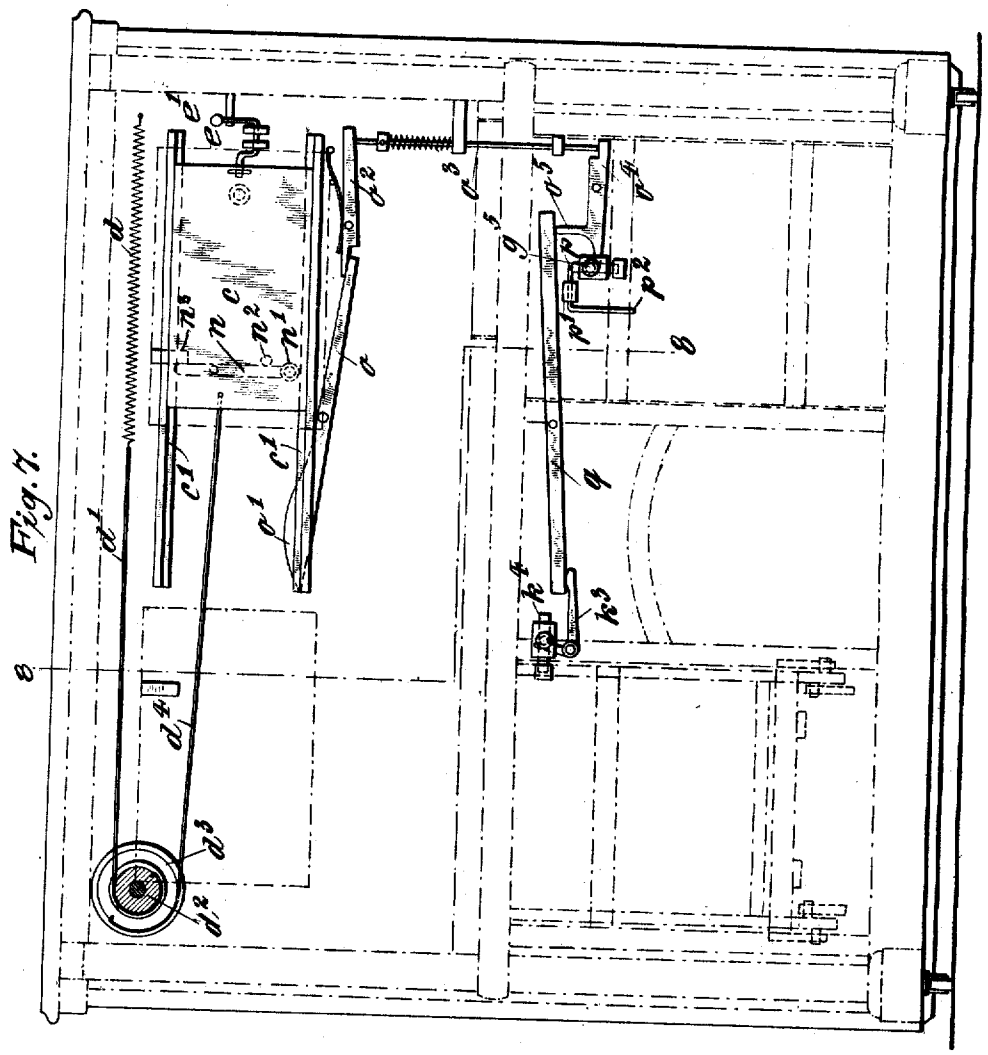


Fig. 7.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN A. WESER, OF NEW YORK, N. Y.

AUTOMATIC PIANO, &c.

No. 907,207. Specification of Letters Patent. Patented Dec. 22, 1908.

Application filed April 5, 1906, Serial No. 309,955. Renewed October 6, 1908. Serial No. 456,413.

To all whom it may concern:

Be it known that I, JOHN A. WESER, a citizen of the United States, residing in the borough of Manhattan of the city of New York, in the State of New York, have invented certain new and useful Improvements in Automatic Pianos, &c., of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to automatic pianos, organs and other mechanical musical instruments in which the mechanical playing devices are inclosed within the piano case. It is desirable that such pianos shall have the appearance of ordinary pianos, except when the mechanical devices are in use, and at the same time it is necessary that the piano case be capable of being opened as required to permit the application and removal of music sheets, and also that the pedals by which the power bellows are actuated shall be capable of being folded into the case so that their presence shall not be revealed when the case is closed and shall also be capable of being placed readily in operative position.

This invention is therefore concerned particularly with the construction of the case, especially in relation to the music rolls and the blow pedals, and with the adaptation of the blow pedals to the case. In the embodiment of the invention presented in the drawings, moreover, provision is made whereby upon the release of a single catch not only is the case opened for the insertion or removal of a music sheet, but the blow pedals are themselves released and permitted to move into operative position, a music sheet cabinet is also opened automatically, and manually operated controlling devices are uncovered. All these parts and their connections, moreover, are devised with relation to their proper coöperation and to the preservation of the desired appearance of the piano case. Furthermore, power is stored by the closing of some one of these parts which operates to effect the opening of all of the parts when one of them is released.

The invention will be more fully explained hereinafter with reference to the accompanying drawings in which it is illustrated as embodied in different mechanical features.

In the drawings—Figure 1 is a view in vertical, transverse section of an automatic piano to which the invention is applied, the irregular plane of section being indicated by the broken line 1—1 of Fig. 2, many parts which are not concerned with the present invention being omitted and the scale being larger than that of Fig. 2; Fig. 2 is a view in front elevation of some of the parts shown in Fig. 1 so far as they embody the invention, as if the same were removed, the frame and casing of the piano being indicated by broken lines and in outline in order to avoid confusion; Fig. 3 is a detail view showing the blow pedals, their supporting devices and connections in part; Fig. 4 is a view in elevation, as if seen from the inside, of the music sheet cabinet and some of its associated parts, the frame and casing of the piano being also shown; Figs. 5 and 6 are views in vertical section, on different planes, of the parts shown in Fig. 4; Fig. 7 is a view similar to Fig. 2, but illustrating a different embodiment of the invention; Fig. 8 is a detail view in section on the irregular plane indicated by the broken line 8—8 of Fig. 7; Figs. 9 and 10 are detail views illustrating the devices for exposing the manually operated controlling means.

In the embodiment of the invention represented in Figs. 1–6 of the drawings, the tracker-box a of an automatic upright piano is represented as located near the upper right hand corner and as accessible, for the purpose of inserting and removing the music rolls b, b', through an opening in the front casing of the piano which is closed by a panel c arranged to slide in ways c' secured to the front casing c^2. The panel door c is opened, when released, by a spring d which, for convenience, is arranged to act through a cord d' upon a drum d^2, to which is fixed a drum d^3 of larger diameter connected by a cord d^4 with the door c. By the closing of the door c power is stored in the spring d which is utilized thereafter, not only in opening the door c, but in effecting the opening of other parts, as hereinafter described. A latch or detent e of ordinary construction is mounted upon the inner side of the front casing to engage the door c and hold it in its closed position, being provided with a push button e' which projects through the casing in position to be operated by the finger of the player.

The release of the door c by the operation of the latch e is made to release the folding pedal mechanism hereinafter described. For this purpose, in the embodiment of the invention shown particularly in Figs. 1 and 2, there is mounted in the path of movement of

the door a pneumatic cylinder f, the plunger f' of which is arranged to be struck by the door or by a cushion c^3 carried thereby, as the door approaches the limit of its opening movement. The door is also connected to the plunger by a cord f^2, spring f^3 and arm f^4, for the purpose of restoring the plunger to its initial position as the door approaches the limit of its closing movement. The cylinder f is connected by a suitable duct g with a second cylinder g' located suitably with reference to the folding pedal mechanism. As shown, the duct g is connected to the cylinder through the plunger g^2, shown in dotted lines, and the cylinder itself is movable, being restored to initial position by a suitable spring g^3. The cylinder is carried by or acts upon a lever g^4 which operates a latch g^5.

The latch g^5 engages the panel h which carries the blow pedals and normally holds the same in the closed or inoperative position, being released through the movement of the panel-door c. As shown more particularly in Figs. 1 and 2, the blow pedals h' are pivoted upon the swinging panel h and are respectively connected to the bellows pumps by a link h^2 and an arm h^3 having an elbow jointed member h^4 interposed between the link h^2 and the rigid member h^3, in order that the arm may yield when the panel h is thrown up in closed position and permit the panel h to be brought into its exact position as a portion of the lower front casing h^5 of the piano. The member h^3 is fixed or rigid with respect to the movable part of the bellows and when the panel h is thrown up the member h^4 swings on its elbow joint, permitting the panel to swing into the desired position. The panel h is supported by arms h^6 which are pivoted at h^7 upon swinging adjustable arms h^8, each arm h^8 having a projection or toe h^9 extending beyond the pivot h^7 to bear upon a stout flat spring h^{10} which is curved as shown so that when the panel h is in its open position, as represented in Fig. 1, the pressure of the spring h^{10} acts to hold the panel down, and so that when the panel h is turned up into its closed position, the pressure of the spring acts, after the panel has been lifted slightly, to assist in the further movement and to hold the panel in its closed position. A spring stop h^{11} is provided to cushion the closing of the panel.

The springs h^{10} nearly counter balance the weight of the panel h and the parts carried thereby during the first part of the opening movement, but the spring stop h^{11} has sufficient force to start the panel on its opening movement when it is released by the latch g^5. To partly cushion the descending movement of the panel h and its supported parts, and also to effect, if desired, the release of the music roll cabinet hereinafter described, there is mounted upon the panel h a pneumatic cylinder i, the plunger i' of which is pivotally connected to the casing h^6, as at i^2. As shown, the plunger is hollow and is connected by a duct i^3 with a cylinder k, through its hollow plunger k'. The cylinder k is restored to initial position by a spring k^2 and is carried by or acts upon a lever k^3 which operates a latch k^4. The latter engages a hinged panel l which forms, as clearly shown in Figs. 5 and 6, a receptacle or support for music rolls. A spring l' coöperates with a stop l^2 to throw the panel or cabinet l open when it is released, and a second spring l^3 coöperates with a stop l^4 to cushion the outward movement of the panel.

The panel h closes only the upper portion of the opening through the lower front casing h^5 and there is hinged near the bottom of said casing a lower panel m which is closed by a spring m' applied at the hinge. A soft roller m^2 is carried by the lower panel m to bear against the face of the panel h, so that the panel m is thrown down when the panel h is thrown down and so that the spring m', acting through the panel m and roller m^2, also assists in raising the panel h. It will now be understood that when the latch e is released, the door c is immediately opened by the spring d and, through the described devices, the panel h is immediately released and opened slightly by the spring h^{11} so that gravity can act to complete the opening movement of the panel h and panel m. The opening movement of the panel h is cushioned by the pneumatic cylinder i and, through the described connections, the music roll cabinet l is also released and permitted to open. While therefore the several panels are closed, the piano presents the appearance of an ordinary piano to be operated manually, but by pressure upon the button e' the piano is immediately prepared for use as an automatic or mechanical piano. As will be noted, the latch g^5, or the latch k^4, or the latch r, is held out of engagement with its door only during the actuating movement of the door c, and after such actuating movement may at once reëngage its door and thereafter hold it closed, although the door c remains open.

It is obvious that various changes can be made in the details of construction and arrangement. Thus, for example, as illustrated in Figs. 7 and 8, levers may be employed for releasing the latches of the folding pedal mechanism and of the music roll cabinet, in place of the pneumatic devices previously described. As shown in said figures, there is pivoted upon the rear side of the door c an arm n, having at its lower end a roll n'. A stop n^3 secured to the door prevents movement of the arm n in one direction. Pivoted upon the rear side of the casing c^3 is a lever o having one end o' placed in the path of movement of the roller n', so that as the door c is opened the end o' of the

lever o is depressed. It will be observed that the arm n is held by the stop n^2 during the operative movement of the parts and that the arm n is free to move in the opposite direction so that when the door c is being closed the arm n yields and does not actuate the lever o and its connected devices. A stop n^3, fixed on the casing, coöperates with the upper end of the lever n to restore the lever to normal position as the door reaches its closed position. The lever o acts through a spring pressed lever o^2 and a spring jitted rod o^3 upon another lever o^4 which is pivoted in proximity to the opening of the lower casing h^6. One arm of this lever acts upon the latch g^6 which, as before, engages the panel h, and the latch g^5 in this instance is shown as acting upon one arm p of a crank lever pivoted at p', the other arm p^2 of which acts against the upper edge of the panel h to throw the same outward when it is released by the latch h^5. A toe o^6 on the lever o^4 acts upon a lever q which in turn operates the latch lever k^3 to withdraw the latch k^4 of the music roll cabinet l. The opening of any of the movable parts or doors above mentioned may also be caused to effect the opening of a movable door or cover p (Figs. 9 and 10) which normally incloses and conceals one or more of the manually operated controlling devices, such as is represented by push button shown in dotted lines at p' in Fig. 10, the same being adapted to control an inlet valve p^3 for a pneumatic tube p^3, as commonly employed in instruments of the character shown. The door or cover p is engaged by a latch r, which in turn is engaged by a lever r' which is operated upon by a button r^2 on the rod o^3 which, in the construction shown in Figs. 7 and 8, transmits movement from one part of the mechanism to another. The door p is held by the latch r against the action of a spring s, which throws the door open as soon as it is released. Various other changes will readily suggest themselves in view of the foregoing disclosure and it will be understood that the invention is not limited to the particular construction and arrangement shown and described herein. It will be obvious, furthermore, that any one of the movable parts or doors mentioned or any other analogous part might be made the controlling part, upon the movement of which the release of the other parts shall depend and by the closing of which power is stored for effecting the release or movement of the other parts.

No claim is made herein to the construction of the pedal mechanism and the right to make the same the subject of another application is reserved.

I claim as my invention:

1. In a mechanical musical instrument, the combination of a case, a plurality of movable doors, a spring placed under tension by the closing of one of said doors and means actuated by the opening of said door to effect the opening of another of said doors.

2. In a mechanical musical instrument, the combination of a case, a plurality of movable doors, a spring placed under tension by the closing of one of said doors and a latch retaining another of said doors and means actuated by the opening of the first named door to release said latch.

3. In a mechanical musical instrument, the combination of a case, a tracker-box, a spring actuated movable door for the tracker-box, a detent for said door, folding pedal mechanism and means operated by the movement of the door to release the pedal mechanism.

4. In a mechanical musical instrument, the combination of a case, a swinging panel, pedal mechanism carried thereby, a spring stop for the panel, a detent to retain the panel against said stop and a pneumatic check applied to the panel.

5. In a mechanical musical instrument, the combination of a case, folding pedal mechanism, a swinging music cabinet and means operated by the opening movement of the pedal mechanism to release the swinging cabinet.

6. In a mechanical musical instrument, the combination of a swinging panel, pedal mechanism carried thereby, a swinging music cabinet and means actuated by the opening movement of the swinging panel to release the cabinet.

7. In a mechanical musical instrument, the combination of a swinging panel, pedal mechanism carried thereby, a swinging cabinet, a spring stop therefor, a detent therefor and means actuated by the opening movement of the swinging panel to disengage said detent.

8. In a mechanical musical instrument, the combination of a case, a tracker-box, a movable door therefor, folding pedal mechanism, a swinging music cabinet, means operated by the movement of the door to release the pedal mechanism and means operated by the movement of the pedal mechanism to release the cabinet.

9. In a mechanical musical instrument, the combination of a case, a tracker-box, a movable door therefor, a movable door for manually controlling devices, and means actuated by the opening of the first named door to release the last named door.

10. In a mechanical musical instrument, the combination of a case, a tracker-box, a movable door therefor, folding pedal mechanism, means actuated by the movement of one of the two last named parts to release the other.

11. In a mechanical musical instrument, the combination of a case, a tracker-box, a movable door therefor, folding pedal mech-

anism, a swinging music cabinet and means actuated by the movement of one of said movable parts to release the other.

12. In a mechanical musical instrument, the combination of a case, a tracker-box, a movable door therefor, folding pedal mechanism, a swinging music cabinet, a movable cover for manually controlling devices and means actuated by the movement of one of said movable parts to release the others.

13. In a mechanical musical instrument, the combination of a case, a swinging panel, pedal mechanism carried by said panel and a second spring actuated swinging panel coöperating with the first to close the same.

14. In a mechanical musical instrument, the combination of a case having an opening, a swinging counterbalanced panel adapted to close said opening, pedal mechanism carried by said panel, and a second spring-actuated, swinging panel coöperating with the first named panel, to move therewith to close said opening.

15. In a mechanical musical instrument, the combination of a case having an opening, a two-part swinging panel adapted to close said opening, said parts being hinged on different lines, one above the other, with the lower part hinged at the bottom, pedal mechanism carried by the upper part, counterbalancing springs to act upon the upper part of said panel and a spring acting upon the lower part to cause it to bear against the upper part when open.

16. In a mechanical musical instrument, the combination of a case, a plurality of movable doors, a latch engaging one of said doors to hold it in closed position, and means actuated by the opening of another of said doors to disengage said latch, said latch being adapted to engage the first named door except during the actuating movement of the second named door, whereby the first named door may be reëngaged and held closed by the latch after the opening of the second named door.

This specification signed and witnessed this fourth day of April 1906.

JOHN A. WESER.

Signed in the presence of—
W. B. GREELEY,
ELLA J. KRUGER.