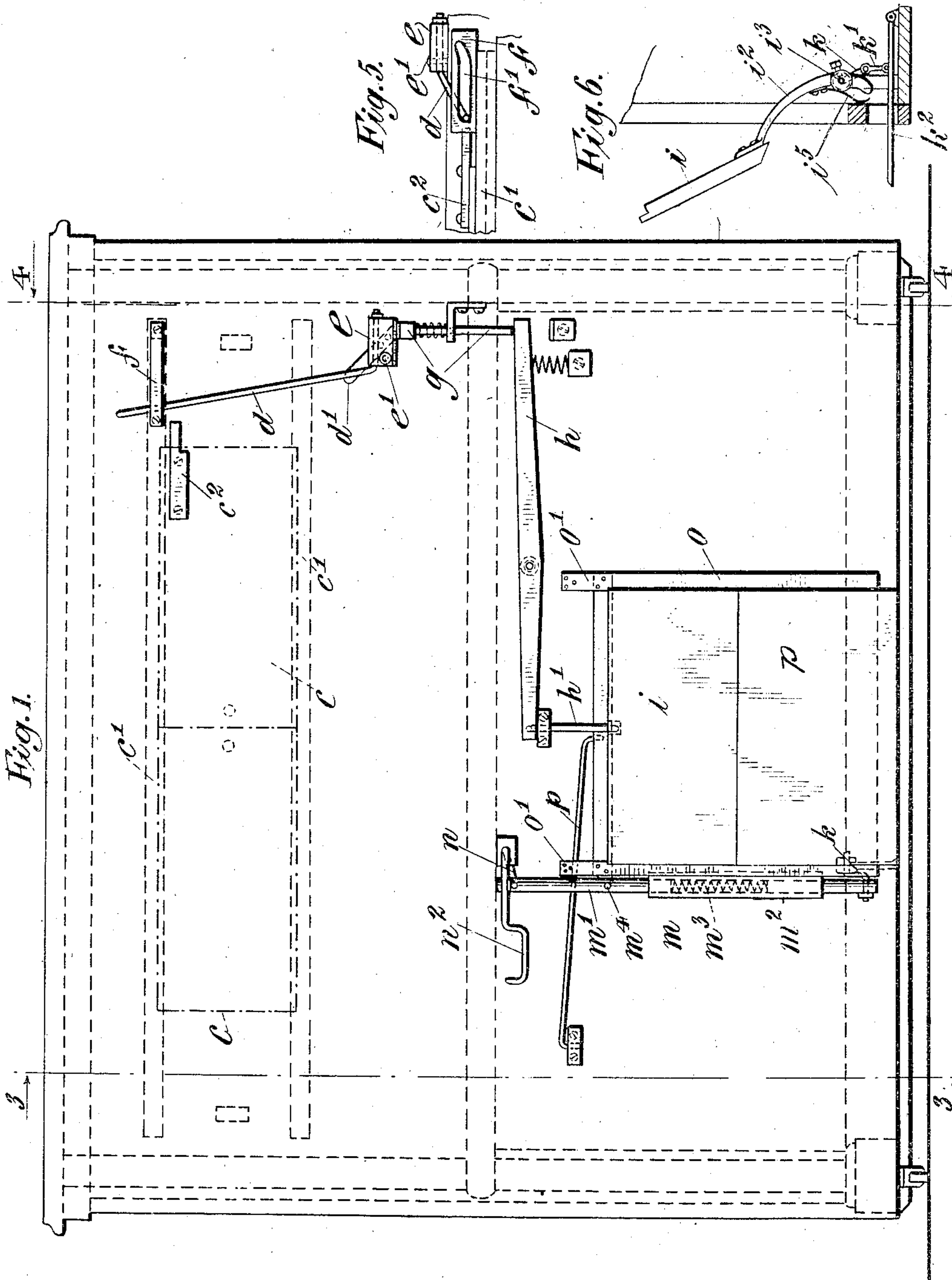


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AUTOMATIC PIANO, &c.
APPLICATION FILED DEC. 17, 1907.

Patented Dec. 22, 1908
2 SHEETS—SHEET 1.



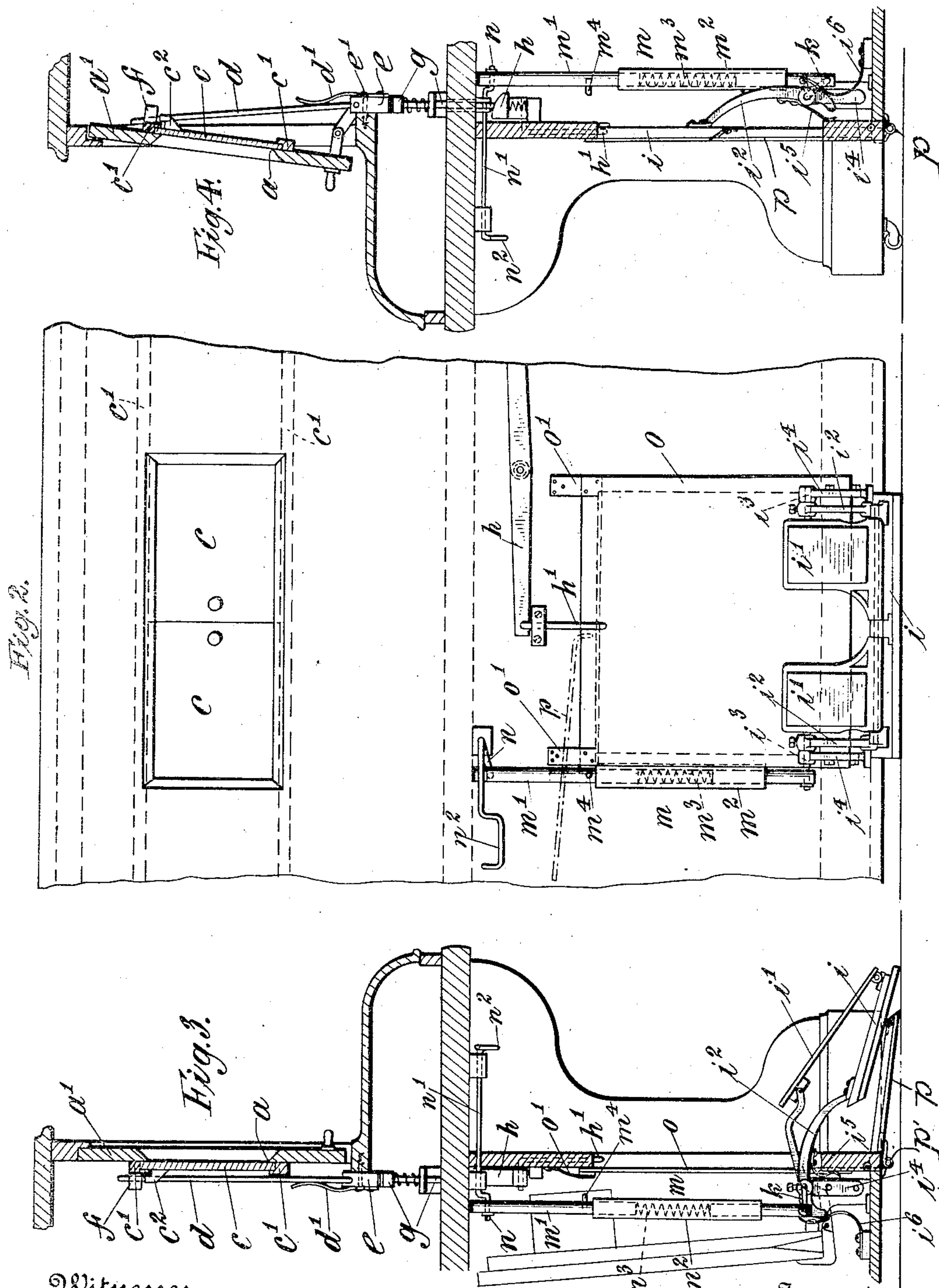
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UNITED STATES PATENT OFFICE.

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

AUTOMATIC PIANO, &c.

No. 907,206.

Specification of Letters Patent.

Patented Dec. 22, 1908.

Application filed December 17, 1907. Serial No. 406,922.

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 or organ case, and it has for its object to effect certain improvements in the construction, arrangement and control of the doors which close the openings in the case and particularly the doors which support the folding pedal mechanism and close the opening therefor in the lower portion of the case.

In the embodiment of the invention which is chosen for illustration herein the sliding door or panel which closes the tracker box in the upper portion of the case is made to effect, by its opening movement, the release of the panel or door which supports the folding pedals, the intermediate devices being so constructed as to permit them to return to locking position, so as to hold the pedal door or panel, if desired, as the tracker box pedal reaches its extreme open position. Means are also provided, for operation by the hand or by the foot of the performer, to return the folding pedal door to closed position. Furthermore, means are provided for closing from within the pedal opening when the pedals are in their open or operative position, thereby preventing the exposure of the mechanism.

The several features of the invention will be more fully explained hereinafter with reference to the accompanying drawings in which—

Figure 1 is a view in front elevation showing the pedal door or panel and the means for releasing the same by the opening of the tracker box door and the means for closing the same by hand, the piano casing being represented in outline and by dotted lines and the pedal door being shown in its closed position. Fig. 2 is a partial similar view,

but showing the pedals unfolded or in their operative position. Fig. 3 is a transverse vertical section, looking to the right in Figs. 1 and 2 and showing the pedal unfolded. Fig. 4 is a transverse vertical section, similar to Fig. 3, but looking to the left in Figs. 1 and 2 and showing the pedal doors closed. Fig. 5 is a detail plan view, showing the relation of the tracker box door and the lever operated thereby. Fig. 6 is a detail view illustrating means for closing the pedal door by the foot of the performer.

In the embodiment of the invention represented in the drawings the tracker box of an automatic upright piano is indicated as accessible for the purpose of inserting and removing the music roll through an opening *a* formed therefor in the swinging front panel *a'* of the upper part of the piano casing, the opening being closed by sliding doors or panels *c, c*, arranged to slide in ways *c'* secured to the front casing or panel *a'*. One of the panel doors *c* has secured to it a finger or projection *c²* which, in the movement of the door, engages a rod *d* which forms one arm of a bell crank lever as hereinafter described. The rod *d* is mounted in a block *e* so as to be capable of swinging away from the front casing and it is guided at its upper end in a guide plate *f* which has a cam slot *f'*, the slot being turned away from the front casing at its outer end so that as the rod *d* is pushed by the finger or projection *c²* toward the right hand in Figs. 1 and 5, it will be caused to move out of engagement with the finger as it approaches the limit of its movement and so permitted to return to its initial position while the door *c* remains open. A flat spring *d'* bears against the rod *d*, pressing it normally toward the front casing. The block *e* in which the rod *d* is mounted is itself pivoted, as at *e'*, so as to be swung upon its pivot by the rod *d* in the movement of the latter, and forms the other arm or member of the bell crank lever. Below the outer or free end of the block or arm *e* is mounted a vertically movable, spring lifted plunger *g* which rests, at its lower end, upon a spring pressed lever *h*. The inner end of the lever *h* is connected to a vertically movable latch *h'*, which engages the part *i* of the door which closes the pedal opening and supports,

in the usual manner, the pedals i' . The door i is carried, as usual, by arms i^2 secured to short shafts i^3 mounted in the bearing blocks i^4 . A spring i^5 secured to one of the arms i^2 and bearing against the lower portion of the casing, below the axis upon which the door swings, serves to start the door outward as soon as it is released by the latch, the further movement of the door being effected by the weight of the door, or by the hand of the performer or both. A spring i^6 coöperates with the door or panel i , preferably through an extension of one of the arms i^2 , acting, during the downward movement of the door or panel, at one side of the axis to partially counterbalance the door or panel in its downward movement and acting when the door or panel reaches its lowest position, substantially through the axis, whereby the lifting power of the spring is reduced, although the tension of the spring is increased, and the door or panel is permitted to remain stationary in such lowest position under the influence of the overbalancing weight of the door or panel and of the parts movable therewith or carried thereby.

For the purpose of raising the door or panel i from its lowest position without requiring the performer to stoop to the floor, one of the shafts i^3 is provided with a crank arm k . In the construction shown in Figs. 1, 2, 3 and 4, the crank arm k is connected by a rod m with an arm n of a rock shaft n' which is supported in suitable bearings and is provided with a crank arm n^2 in a convenient position to be grasped by the hand of the performer. Downward pressure on the arm n^2 , through the described connections, lifts the door or panel i from its lowest position, in which it is held yieldingly by the spring i^6 , so that it can be grasped readily by the performer and its movement continued to the closed position in which it is held by the latch h' . In order that the arm n^2 may be returned immediately to its normal and inconspicuous position, the connecting rod m is composed of two parts m' and m^2 , one of which telescopes within the other, while a spring m^3 is interposed between the two parts. One of the parts, as m' , is also provided with a pin or projection m^4 . When, therefore, the arm n^2 is depressed the spring m^3 is compressed until the pin m^4 makes contact with the end of the part m^2 of the rod and the continued movement of the arm n^2 is then imparted to the door or panel i . As soon as the arm or handle n^2 is released by the performer, the spring m^3 restores it to its normal or inconspicuous position, regardless of the position of the door or panel i . In the construction shown in Fig. 6 the crank arm k is connected by a link k' with a foot press k^2 , so that by the application of the foot of the

performer the door or panel i can be started from its lowest position.

In order that the pedal opening may be closed and exposure of the mechanism prevented when the pedals are unfolded or in their operative position, there is provided, within the casing and in rear of the pedal opening, a light shutter o , which is loosely suspended at its upper end by flexible straps o' , and at its lower end is suitably cut away to permit the proper movement of the pedals. A spring p , clearly shown in Fig. 1, is suitably secured to the casing to press the upper end of the screen or shutter o outwardly against the front casing.

It will now be understood that when the door c is opened it effects the release of the pedal door or panel i . As the door c , however, is opened to its full extent, the unlatching devices are themselves released and permitted to return to their normal, inoperative position, so that the pedal door or panel may at once be reengaged by the latch and held from opening should it be so desired. If the pedals have been unfolded to their full extent and it is desired to fold them again and to close the pedal opening, the pedal door or panel is easily started from its extreme position, either by the hand or by the foot of the performer, and is moved to a position in which it can be readily grasped and its movement continued to the closed position, all without requiring the performer to move from his seat or substantially from the playing position. As the pedal door or panel reaches its closed position the shutter o yields inward bodily and also swings upon its flexible hinges to such an extent as to permit the pedal door or panel to be closed without interference. It will be observed that the devices for unlatching the pedal door or panel i are so constructed and combined with the movable front panel a and with the sliding door or panel c as to permit the front panel a to be swung outward for service as a music rack, as indicated in Fig. 4, without interfering with the operation of the case opening devices, which are capable of operation regardless of the position of the front panel.

It will be seen that the entire pedal opening is closed, when the pedals are raised, by two doors i and p . The door i , which carries the pedals, swings upon an axis i^3 which is substantially above the bottom of the piano and within the front of the piano, while the door p swings upon an axis p' which is at the bottom of the piano and substantially in the plane of the front of the casing. The arrangement of the two doors to swing upon different axes, with one of the doors, i , which bears the pedals, swinging upon an axis or center which is above the

axis p' , permits the one door to pass under the other and the pedal bearing door to swing somewhat inward toward the front of the piano as it reaches its lowest position, so that when it is in playing position it stands conveniently close to the front of the casing and is not projected outward from the front of the casing to an awkward and inconvenient distance and especially to a distance which would render more difficult the operative connection of the pedals with the bellows.

It will be understood that various changes in details of construction and arrangement may be made to suit different requirements of use and that the invention, therefore, is not to be restricted to the precise details of construction shown and described herein.

I claim as my invention:

1. 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, intermediate devices actuated by the opening of another of said doors to disengage the latch, and means to disconnect said intermediate devices as the last named door is opened to its full extent, whereby the first named door may be reengaged and held closed by the latch after the opening of the last named door.

2. 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, intermediate devices actuated by the opening of another of said doors to disengage the latch, and comprising a movable member normally standing in the path of a finger actuated by the movement of another of said doors, and means to move said member out of the path of said finger as the second named door is opened to its full extent, whereby the first named door may be reengaged and held closed by the latch after the opening of the second named door.

3. 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, a lever and intermediate devices to operate the latch, one member of said lever standing normally in the path of a finger actuated by another of said doors, and means to move said member out of the path of said finger as the second named door is opened to its full extent, whereby the first named door may be reengaged and held closed by the latch after the opening of the second named door.

4. 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, a pivoted block and intermediate connections to operate the latch, a rod carried by said block and mov-

able with respect thereto and standing normally in the path of a finger carried by another of said doors, and means to move said rod out of the path of said finger as the second named door is opened to its full extent, whereby the first named door may be reengaged and held closed by the latch after the opening of the second named door.

5. 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, a pivoted block and intermediate devices to operate the latch, a rod carried by said block and movable with respect thereto and a cam guide for said rod by which said rod is held in the path of movement of a finger actuated by another of said doors during the first part of the movement thereof and is moved out of the path of said finger during the latter part of said movement, whereby the first named door may be reengaged and held closed by the latch after the opening of the second named door.

6. In a mechanical musical instrument, the combination of a case, folding pedal mechanism, a latch engaging said mechanism to hold it in closed position, a sliding tracker box door, intermediate devices actuated by the opening of the tracker box door to disengage the latch, and means to disconnect said devices as the tracker box door is opened to its full extent, whereby the pedal mechanism may be reengaged and held closed by the latch after the opening of the tracker box door.

7. In a mechanical musical instrument, the combination of a case, folding pedal mechanism, a latch engaging said mechanism to hold it in closed position, a sliding tracker box door, a lever and intermediate mechanism to operate the latch, said lever having a movable member standing normally in the path of a projection carried by the tracker box door, and means to move said member out of the path of said projection as the tracker box door is opened to its full extent, whereby the pedal mechanism may be reengaged and held closed by the latch after the opening of the tracker box door.

8. In a mechanical musical instrument, the combination of a case, folding pedal mechanism, a latch engaging said mechanism to hold it in closed position, a sliding tracker box door, a lever and intermediate mechanism to operate the latch, said lever having a movable member standing normally in the path of a projection carried by the tracker box door, and a cam guide for said member maintaining the same normally in the path of a projection carried by the tracker box door and throwing it out of

the path of said projection as the tracker box door is opened to its full extent.

9. In a mechanical musical instrument, the combination of folding pedal mechanism and devices independent thereof and adapted to be actuated by the performer to start said mechanism from its open position.

10. In a mechanical musical instrument, the combination of folding pedal mechanism, a crank arm connected therewith and devices connected with said crank arm and adapted to be actuated by the performer to start the pedal mechanism from its open position.

11. In a mechanical musical instrument, the combination of a case having a pedal opening, a pedal door therefor, and devices independent of the pedal door and adapted to be actuated by the performer to start said door from its open position.

12. In a mechanical musical instrument, the combination of a case having a pedal opening, folding pedal mechanism, a pedal door supporting said mechanism and devices independent of the door and adapted to be actuated by the performer to start the door from its open position.

13. In a mechanical musical instrument, the combination of a case having a pedal opening, a pedal door, a spring cooperating with said door to hold it in open position and devices independent of the door and adapted to be actuated by the performer to start the door from its open position.

14. In a mechanical musical instrument, the combination of a case having a pedal opening, a pivoted pedal door, a crank arm connected with said door and means connected with said crank arm and adapted to be actuated by the performer to start the door from its open position.

15. In a mechanical musical instrument, the combination of a case having a pedal opening, a pivoted pedal door, a crank arm connected with said door, a crank arm adapted to be actuated by the performer and a link connecting said crank arms.

16. In a mechanical musical instrument, the combination of a case having a pedal opening, a pivoted pedal door, a crank arm connected with said door, a crank arm adapted to be actuated by the performer and a link connecting said crank arms, said link comprising two relatively movable parts and an interposed spring.

17. In a mechanical musical instrument, the combination of a case having a pedal door, folding pedal mechanism, and a shutter adapted to close the opening when the pedal mechanism is open and yieldingly supported to permit the pedal mechanism to be closed without interference.

18. In a mechanical musical instrument,

the combination of a case having a pedal opening, folding pedal mechanism, a shutter to close said opening from the inside and flexible straps supporting said shutter whereby the shutter may yield bodily and swing to permit the pedal mechanism to be folded without interference.

19. In a mechanical musical instrument, the combination of a case having a pedal opening, folding pedal mechanism, a yielding shutter to close said opening from the inside, flexible supports for said shutter, and a spring permitting said shutter to yield bodily as the pedal mechanism is folded and operating to close the shutter as the pedal mechanism is opened.

20. In a mechanical musical instrument, the combination of folding pedal mechanism and means operable by the performer without moving substantially from a playing position to close and open the pedal mechanism.

21. In a mechanical musical instrument, the combination of a case, a folding pedal mechanism, a latch engaging said pedal mechanism to hold it in closed position, a swinging music rack and means supported in part by said swinging music rack and operable in either position thereof for disengaging said latch.

22. In a mechanical musical instrument, the combination of a case, a swinging panel, a pedal mechanism movable therewith, and a spring co-acting with the panel and placed under tension at one side of the axis and the panel during the first portion of the downward movement of the panel to counterbalance the same and acting substantially through the axis of the panel as the panel reaches its lowest position the lifting power of the spring being thereby reduced as its tension increases to permit the panel to remain stationary in such lowest position.

23. In a mechanical musical instrument, the combination of a case, a swinging panel, a pedal mechanism carried thereby, a pivoted supporting arm for said panel having an extension beyond the axis, and a spring co-acting with said extension and placed under tension at one side of the plane of the panel during the first portion of the downward movement of the panel to counterbalance the same and acting against said extension substantially through the axis of the panel as the panel reaches its lowest position, the lifting power of the spring being thereby reduced as its tension increases to permit the panel to remain stationary in such lowest position.

24. In a mechanical musical instrument, the combination of a case having a pedal opening, a swinging panel closing the upper portion of the opening, pedal mechanism movable with said panel, and a second

swinging panel to close the lower portion of said opening, said panel swinging upon different axes whereby the one panel passes under the other when in playing position.

- 5 25. In a mechanical musical instrument, the combination of a case having a pedal opening, a swinging panel closing the upper portion of the opening and swinging upon an axis substantially above the bottom of
10 the case, pedal mechanism carried by said panel and a second swinging panel to close the lower portion of said opening and swinging

upon an axis substantially at the bottom of the case whereby the one panel passes under the other and the pedal carrying panel stands
15 close to the front of the case when in playing position.

This specification signed and witnessed this fourteenth day of December, A. D., 1907.

JOHN A. WESER.

Signed in the presence of—

MAX LEVIAN,

W. B. GREELEY.