

No. 865,914.

PATENTED SEPT. 10, 1907.

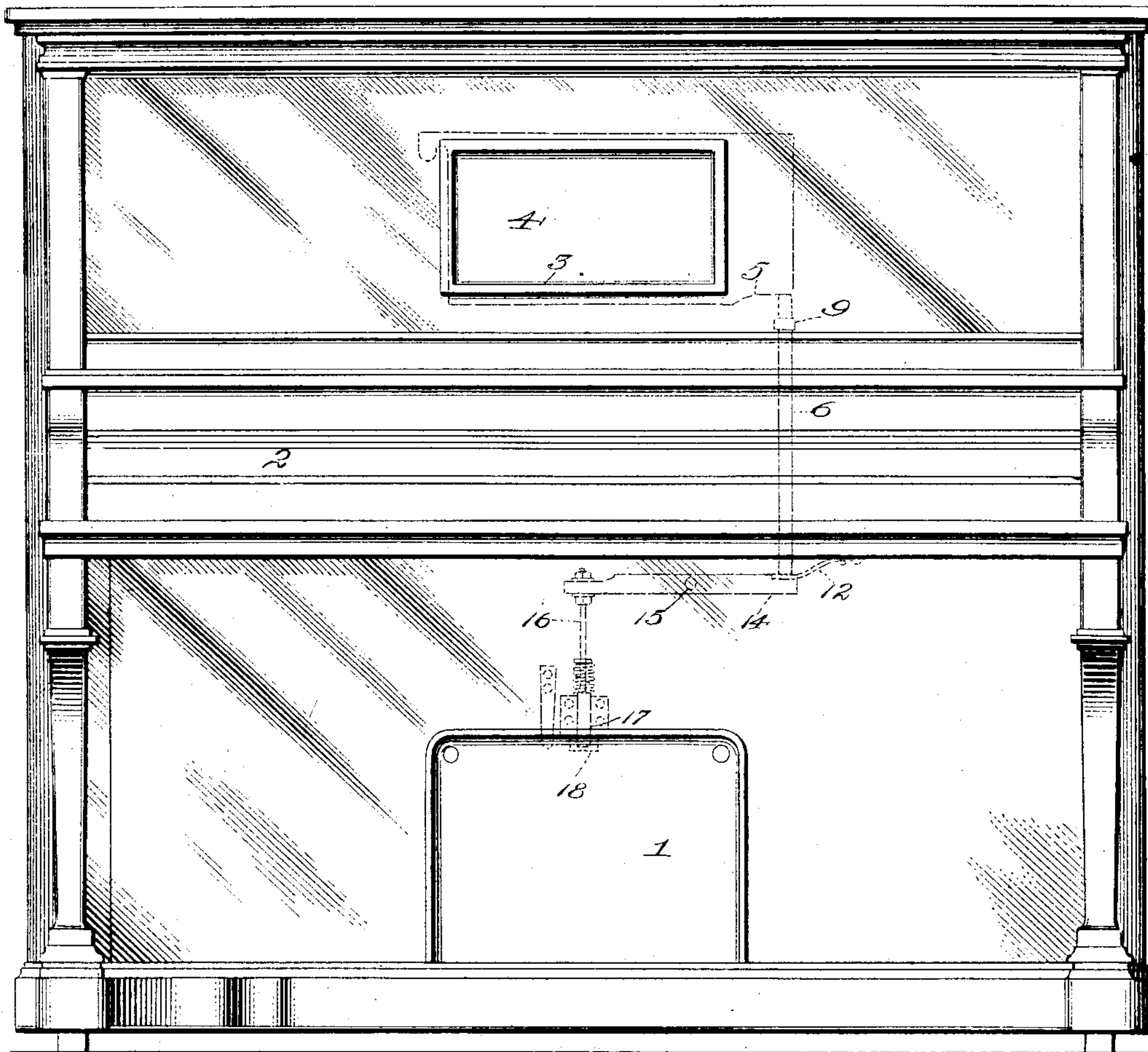
E. J. KNABE, JR.

AUTOMATIC PEDAL EXPOSING DEVICE FOR PLAYER PIANOS.

APPLICATION FILED APR. 1, 1905.

4 SHEETS—SHEET 1.

Fig. 1.



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Witnesses

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4 SHEETS—SHEET 2.

Fig. 2

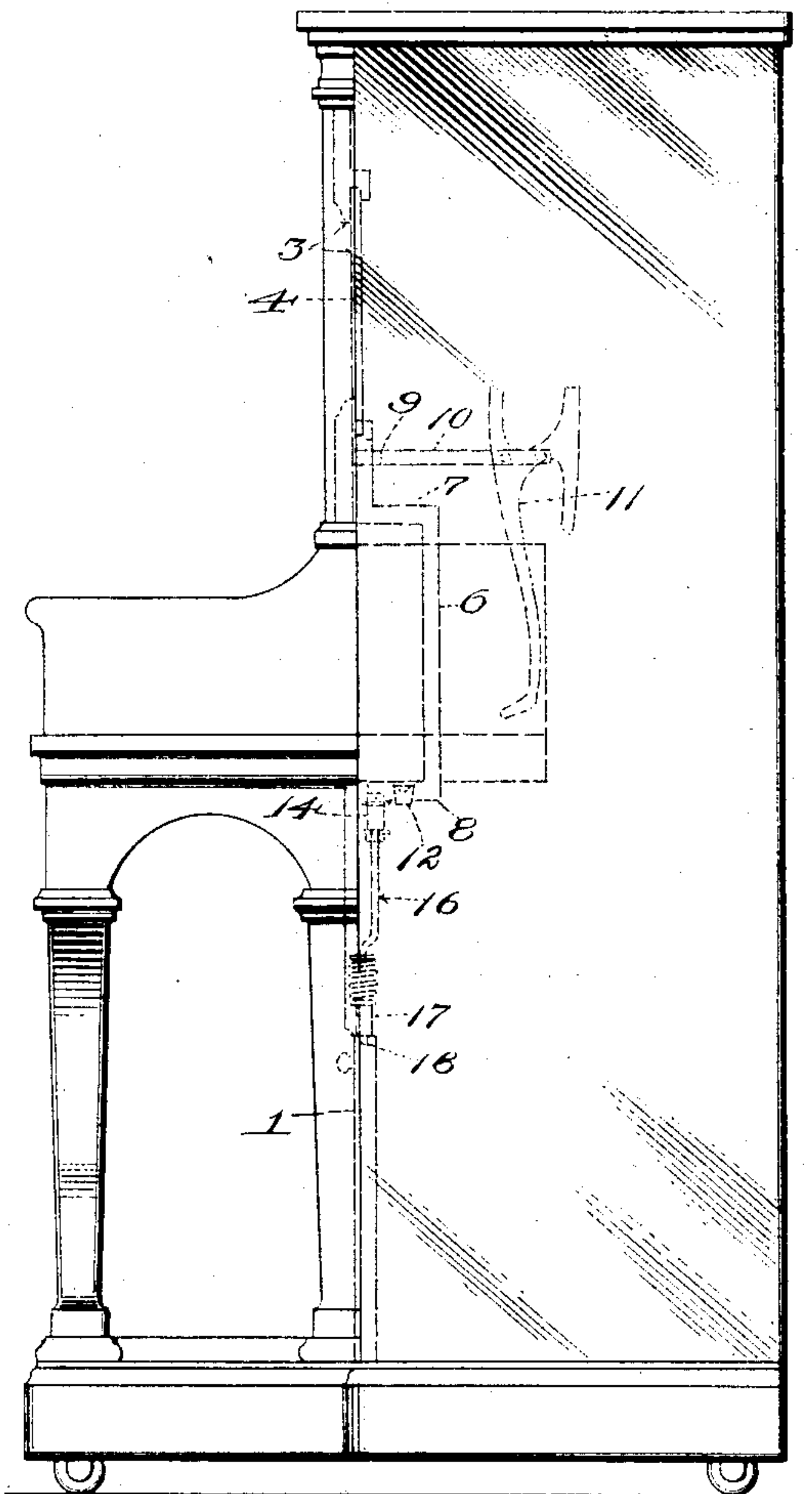
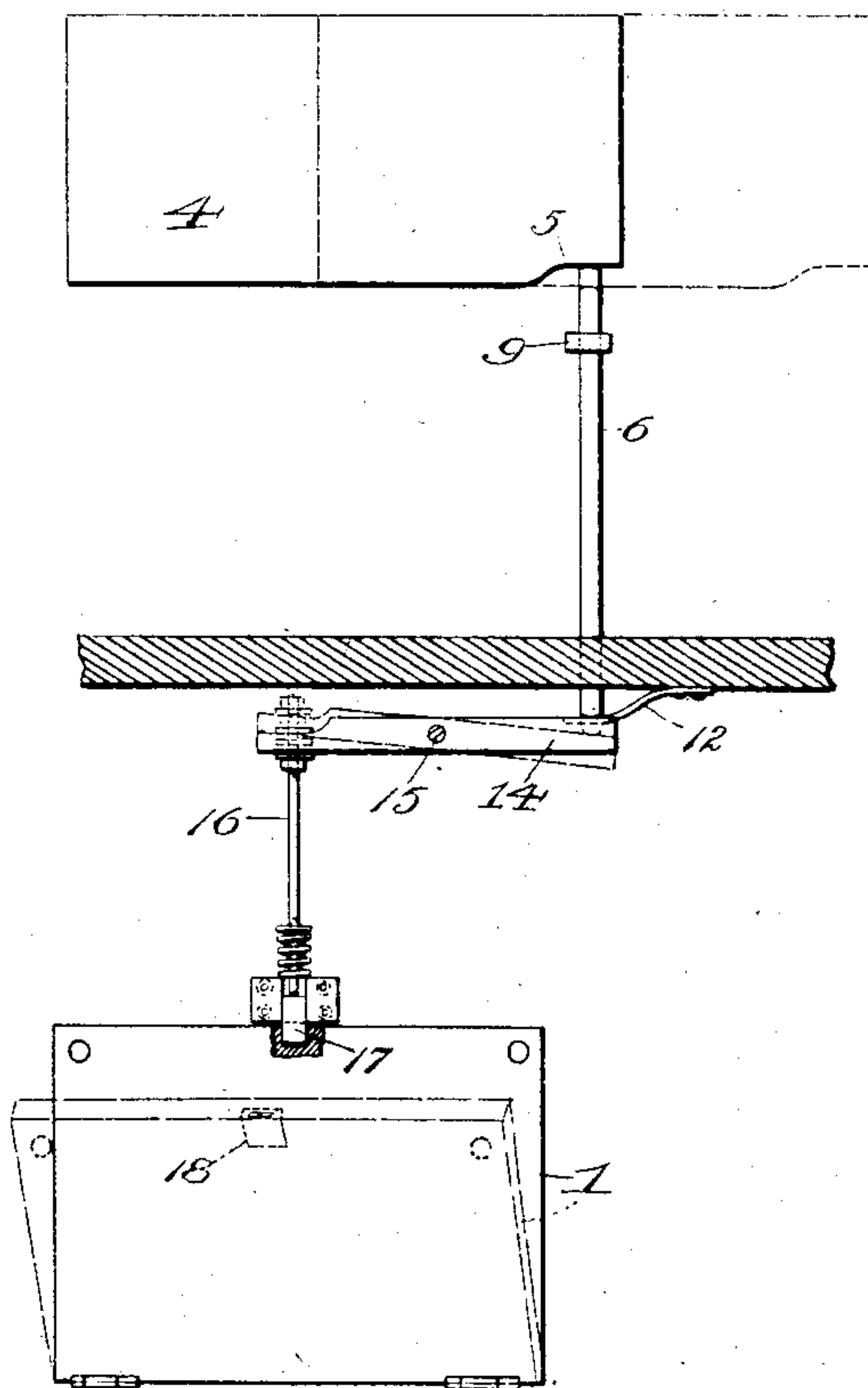


Fig. 3



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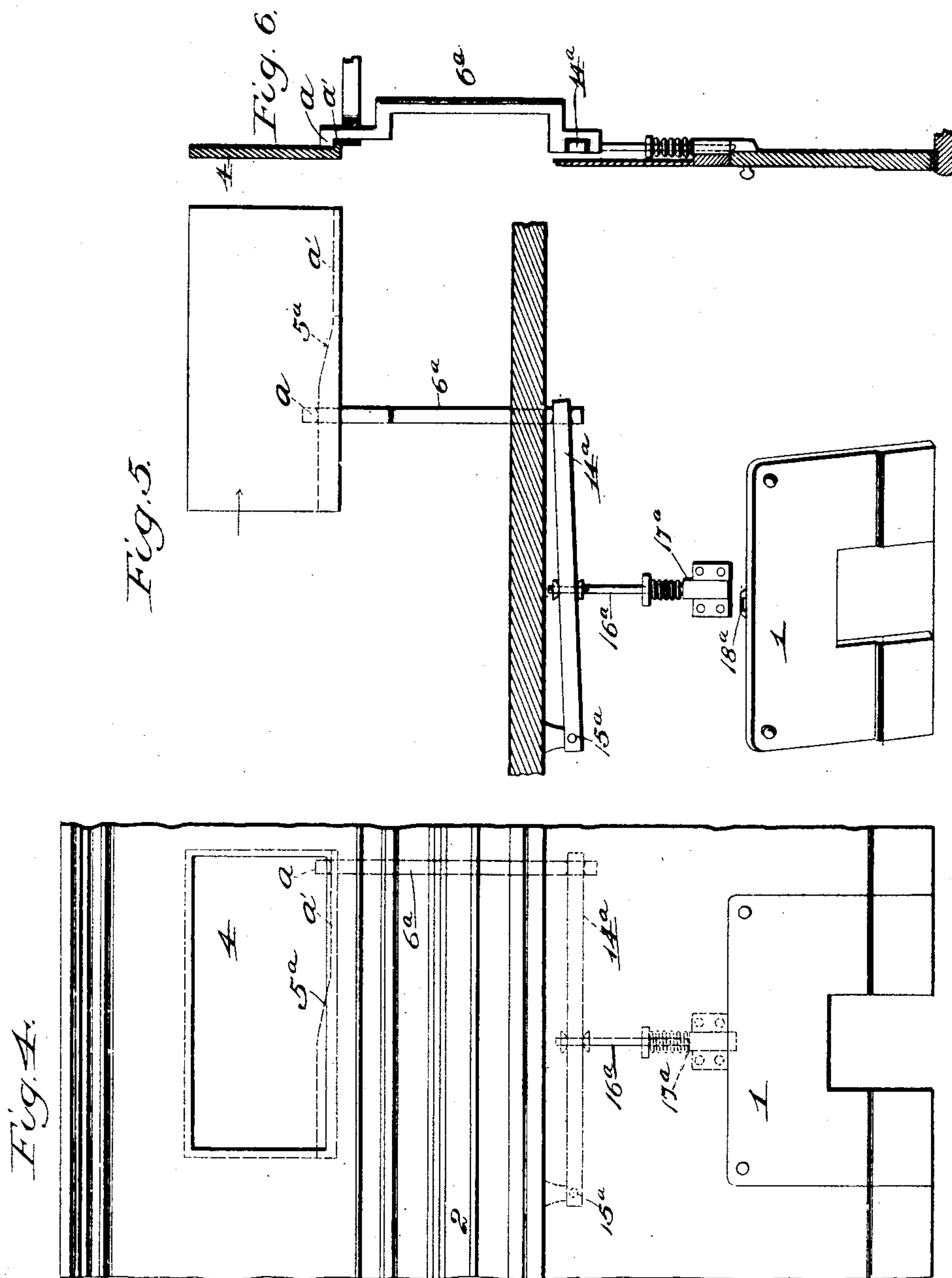
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4 SHEETS—SHEET 3.



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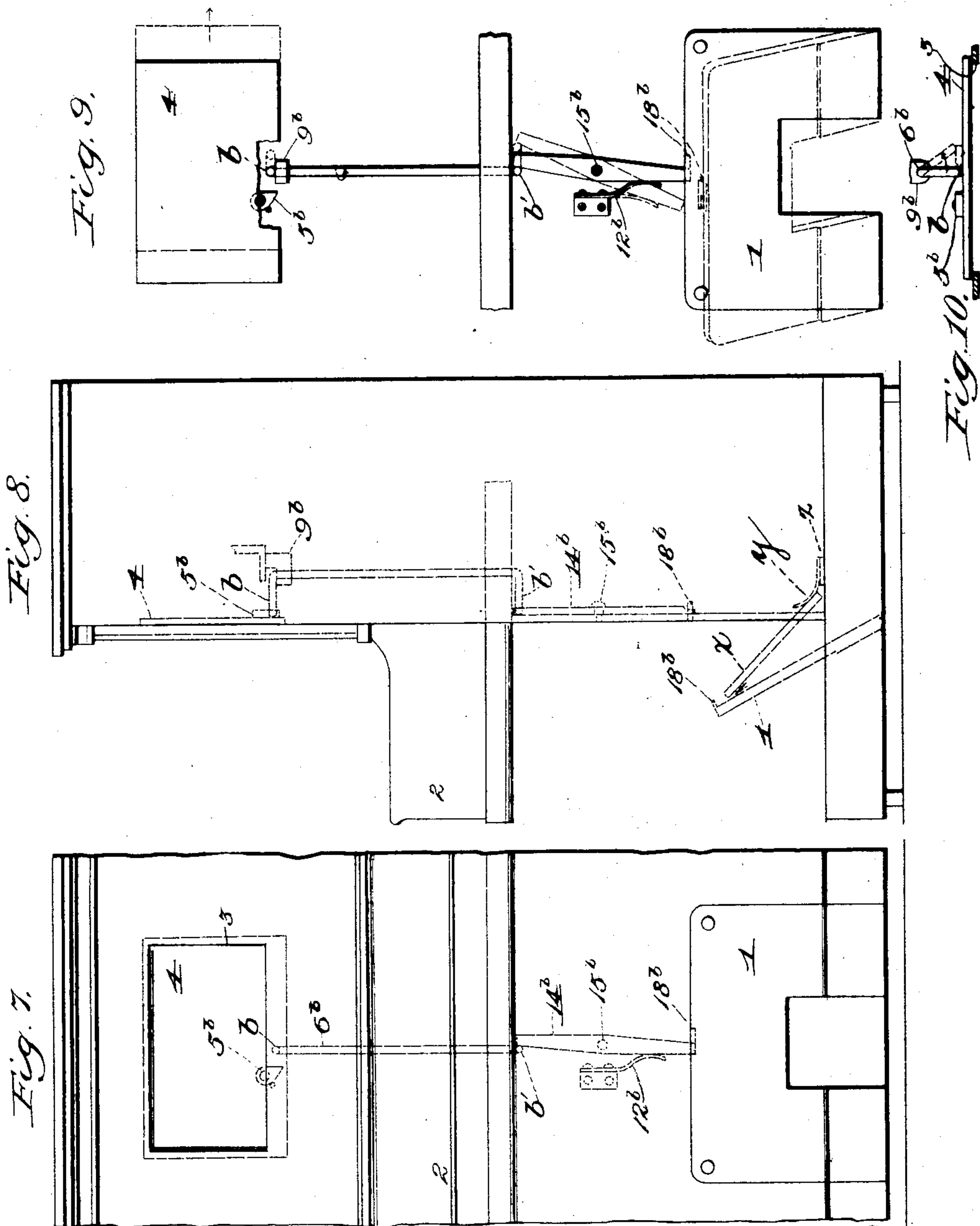
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

ERNEST J. KNABE, JR., OF BALTIMORE, MARYLAND, ASSIGNOR TO THE WM. KNABE & CO. MANUFACTURING COMPANY OF BALTIMORE CITY, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND.

AUTOMATIC PEDAL-EXPOSING DEVICE FOR PLAYER-PIANOS.

No. 865,914.

Specification of Letters Patent.

Patented Sept. 10, 1907.

Application filed April 1, 1905. Serial No. 253,226.

To all whom it may concern:

Be it known that I, ERNEST J. KNABE, Jr., a citizen of the United States, residing at Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Automatic Pedal-Exposing Devices for Player-Pianos; 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.

This invention relates particularly to the movable panels or doors which close the upper and lower parts of the case of self-playing instruments, such especially as combined pneumatic and manually-operated pianos, wherein the automatic player or mechanism for operating the instrument mechanically is incorporated in the construction of the piano. In these instruments, the note-sheet mechanism for controlling the pneumatics is usually contained in the upper part of the case behind a sliding panel, which is opened in order that the perforated web used as a music-roll may be placed in position when the instrument is to be mechanically operated; while the pedal-movement connected with the bellows is confined behind a movable panel or door in the lower part of the case. Heretofore, when the performer has desired to operate the piano by the mechanical player, it has been necessary for him to kneel down upon the floor in order to open this lower panel or door, to obtain access to the pedals.

The object of the present invention is to relieve the performer of this inconvenience, by automatically opening the lower door whenever the upper panel is opened; which I accomplish by an efficient device for opening the pedal-cover or lower door actuated by the opening movement of the upper one. This device also possesses the advantage that the upper panel, the fall-board, or the lower door, or either one of them separately, can be removed without in any way disturbing the arrangement or operation of the connecting device when these parts are again reassembled.

The invention is capable of different specific embodiments, several of which are illustrated in the accompanying drawings, which form a part of this specification. Without limiting myself, therefore, to the illustrated constructions, which are susceptible of modification in details and arrangement, or to any particular embodiment, the invention will be fully described with reference to said drawings and then more particularly pointed out and defined in the annexed claims.

In said drawings: Figure 1 is a front view of the case of a self-playing piano, with one preferred form of device embodying my invention indicated by dotted

lines, the said device being inclosed within the case. Fig. 2 is an end view of the case, with said device likewise indicated by dotted lines. Fig. 3 is a detail view, in front elevation, showing the upper panel, the lower door or pedal-cover, and the connecting operating device, all removed from the piano and assembled in correct relation, with dotted lines indicating the movements of the parts when the upper panel is opened. Fig. 4 is a fragmentary front view of the medial front part of a player piano case, with another form of device embodying my invention incorporated in the case, said device being represented by dotted lines. Fig. 5 is a view similar to Fig. 3 with respect to the subject-matter of Fig. 4, showing the position of the parts when the upper panel is opened. Fig. 6 is a side view of the subject-matter of Fig. 5, showing the position of the parts when the upper panel is closed. Fig. 7 is also a fragmentary front view of a part of the case, with still another form of device embodying my invention represented therein by dotted lines. Fig. 8 is an end view of the case shown in Fig. 7, with the said device likewise represented by dotted lines; and with fine dotted lines indicating the position of the lower door or pedal-cover when unlatched and allowed to fall outward by said device. Fig. 9 is a view similar to Fig. 3 with respect to the subject-matter of Figs. 7 and 8. Fig. 10 is a top plan view of the subject-matter of Fig. 9.

A particular explanation of the construction illustrated in Figs. 1, 2 and 3 is as follows:

The numeral 1 indicates the lower panel or door, which covers the pedal-movement in the lower part of the case. In this instance, it is shown as a trap-door hinged at its bottom.

2 denotes the fall-board.

3 is the opening in the upper front of the case, in which is contained the usual mechanism (tracker-bar traversed by a perforated web or note-sheet) for controlling the pneumatics.

The piano-construction and mechanical operating mechanism are not concerned in this invention, and therefore are not represented.

The opening 3 is closed by the sliding panel 4, which in this instance moves toward the right (as indicated by dotted lines in Fig. 3) to uncover said opening and expose the note-sheet behind the panel. Said panel 4 has its bottom edge cut out at 5, to provide a rising incline or cam-surface, located preferably at the right-hand end of the board, as shown.

6 denotes a vertically-disposed movable actuating-stick or rod, spring-held upward with its upper end contacting with the bottom edge of the panel 4. When the panel is closed, the said upper end of this stick projects up into the cut out part 5, above the surface

of the bottom edge of the board. Said stick or rod is shown in Fig. 2 having the greater part of its length offset from the front of the case, the ends of said stick extending vertically from arms or bends 7 and 8 projecting forwardly from the body of the stick. This offsetting of the greater length of the stick is to escape interference with the hinged side of the fall-board as the latter is raised and lowered, as well understood. The stick may be guided in suitable ways, one of which is afforded by the collar 9 carried by the arm 10 shown in Fig. 2 attached to the action-bracket 11.

The spring for uplifting the stick is denoted by the numeral 12. It is shown attached to the board or bottom below the keyboard, and acts upon the lower end of the rod, or upon its lower lateral arm 8.

The numeral 14 denotes a lever, intermediately fulcrumed at 15. One arm of this lever is in contact with, or may be connected to, the lower end of the stick 6. The other arm is connected to the rod 16, to which is attached a spring-latch 17 adapted to engage a socket 18 therefor in the upper edge of the trap-door 1.

The operation is as follows: When the upper panel 4 is opened, by sliding it to the right, the incline or wedge-surface 5 forces the stick 6 downward, thereby rocking the lever 14 and lifting the rod 16, which thus withdraws the latch 17, releasing the trap-door 1 and allowing it to fall outward. The mechanism of this trap door may be such that the door will fall outward only to an angle of about thirty degrees, as hereinafter explained to prevent the pedals from falling against the shins of the performer's legs; and thereupon the performer who wishes to use the piano can depress the door with his foot. When the upper panel is closed, the latch will fall, and the lower panel may be closed, whereupon the latch will snap into its socket and hold the door closed.

Various alternative forms of devices embodying my invention may be adopted. Thus, the wedge or incline 5 might be located at the upper part of the panel 4, and the stick 6 caused to ascend for effecting the opening of the lower door; or the lower door might be operated by a revolving stick, actuated from the upper panel. Two of such alternative constructions will now be explained.

Referring to Figs. 4, 5 and 6, the device here illustrated is practically similar in construction and operation to that described with reference to Figs. 1, 2 and 3, except that the arrangement provides for upward instead of downward movement of the actuating stick or member 6^a to effect the release and allow opening of the lower door or pedal cover. Said actuating stick has at its upper end a lug or part *a* overlying a longitudinal surface *a'* on the back of the upper panel 4; said surface having a rising incline 5^a to elevate the stick as the upper panel is slid open or toward the right. In this case, the lower end of the stick 6^a supports one end of the lever 14^a, which is fulcrumed at its other end at 15^a, and intermediately connected with the rod 16^a which carries the spring-latch 17^a for engaging the socket 18^a in the lower door or panel 1.

Referring to Figs. 7, 8, 9 and 10, these show an arrangement providing for a turning of the actuating stick or member 6^b to effect release or unlatching and opening of the lower door. The stick 6^b is mounted to turn in its bearing 9^b and has an arm *b* projecting

laterally into the path of movement of a trippet or lug 5^b on the back of the upper panel 3. The lower end of the stick 6^b has an arm *b'* projecting laterally beside one arm of the vertically-disposed lever 14^b. This lever is intermediately fulcrumed at 15^b, and the end of its other arm serves as a latch to engage in the socket 18^b of the lower door or panel, being held therein by the spring 12^b. When the upper panel is slid open, its trippet 5^b, by engagement with the arm *b* of the stick 6^b, positively turns said stick, whose other arm *b'* positively rocks said lever 14^b against the resistance of the spring 12^b, thus unlatching the lower door and allowing it to fall outward. Fig. 8 also indicates the construction before referred to whereby the lower door when unlatched will fall outward only to an angle of about thirty degrees, remaining to be depressed further by the performer's foot. In this figure, *x* represents the pedals, which are attached to the inside of the trap-door 1, and which operate the bellows of the mechanical-player. *y* is a spring attached to the small block *z*, and catching against the inner end of the pedal. This spring is strong enough to prevent the pedal *x* from falling against the shins of the performer's legs, but is not strong enough to prevent him from depressing the trap-door with his foot so that its extremity rests on the floor and the pedals are in operative position.

It will be understood that the invention is susceptible of embodiment in other forms, and that various changes may be made in the details of construction and arrangement without departing from the scope of the invention, the principle of which is the actuating by the upper panel of a connecting device or mechanism for automatically effecting the opening of the lower panel.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A case for mechanically-operated instruments having, in combination, a fall-board or key-board cover, a sliding panel or tracker-bar cover closing an opening in the upper front of the case above the fall-board, a pedal closure in the lower front of the case below the fall-board, and means whereby the pedal is automatically exposed by sliding open the said sliding panel or tracker-bar cover.
2. A case for mechanically-operated instruments having, in combination, a fall-board or key-board cover, a sliding panel or tracker-bar cover in the upper front of the case above the fall-board, a hinged trap-door for covering the pedal-movement located in the lower front of the case below the fall-board and adapted to swing outward and downward, a latch therefor, and latch-releasing mechanism automatically-actuated by the sliding open of said upper panel or tracker-bar cover.
3. A case for mechanically-operated instruments having, in combination, a sliding upper panel, a lower door or pedal-cover, pedal-exposing mechanism, a vertically-disposed controlling member therefor, and an incline on the upper panel adapted to engage and move said controlling member when the upper panel is slid open.
4. A case for mechanically-operated instruments having, in combination, a lower door or pedal-cover, a sliding upper panel, a vertically-movable stick spring-held in contact with a surface on the panel which includes an incline or wedge, and pedal-exposing mechanism controlled by said stick when the upper panel is slid open.
5. A case for mechanically-operated instruments having, in combination, a self-opening lower door or pedal-cover, a latch for holding it closed, a lever for withdrawing said latch, a sliding upper panel having an incline or wedge surface formed on one edge, a vertically-movable member

for operating said lever spring-held in contact with such edge and adapted to be moved by said incline in a direction to release the latch.

5 6. A case for mechanically-operated instruments having, in combination, a pedal-cover, a sliding upper panel, a vertically-arranged actuator having a part disposed in the path of movement of a part carried by said panel and adapted to be engaged and moved thereby on the opening movement of the panel, and pedal-exposing mechanism
10 controlled by said actuator when moved by the opening of said panel.

7. In a case for an autopneumatic instrument, the combination of a key-board cover, a tracker-board cover in the upper front of the case above the key-board cover, a
15 pedal-cover in the lower front of the case below the key-board cover, and means for unlocking the pedal cover automatically actuated by effecting the opening of the tracker-board cover, said means being dissociated from the key-board cover.

20 8. The combination of a pedal-cover, a latch therefor, a lever for releasing the same, an actuating rod for said lever vertically-arranged directly above the same, and a sliding tracker-board cover adapted to operate said rod.

25 9. The combination of a tracker-bar cover and pedal-cover and unlocking-mechanism for said pedal-cover, a fall-

board between the said covers, and a vertically-disposed actuating rod for said unlocking-mechanism extending thereto from said tracker-bar cover and inwardly offset behind the fall-board to escape the hinged side thereof.

10. In a case for mechanically-operated instruments, a pedal-cover consisting of a hinged door adapted to swing
30 outwardly and downwardly, a latch therefor, a tracker-bar cover, means for releasing said latch actuated by opening the tracker-bar cover, and means including a spring adapted to cause the pedal door to swing outward
35 to a partial extent only when the latch is released, said spring adapted to yield to allow the performer to depress said door to its full extent.

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

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

ERNEST J. KNABE, JR.

Witnesses:

WM. KNABE,

A. P. CONRADT.

It is hereby certified that in Letters Patent No. 865,914, granted September 10, 1907, upon the application of Ernest J. Knabe, Jr., of Baltimore, Maryland, for an improvement in "Automatic Pedal-Exposing Devices for Player-Pianos," errors appear in the printed specification requiring correction, as follows: In line 17, page 3, the words "effecting the" should be stricken out and inserted before the word "unlocking" in line 16, and same page, line 17, the word "of" should be stricken out and inserted after the word "unlocking" in line 16; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22d day of October, A. D., 1907.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.