



No. 889,685.

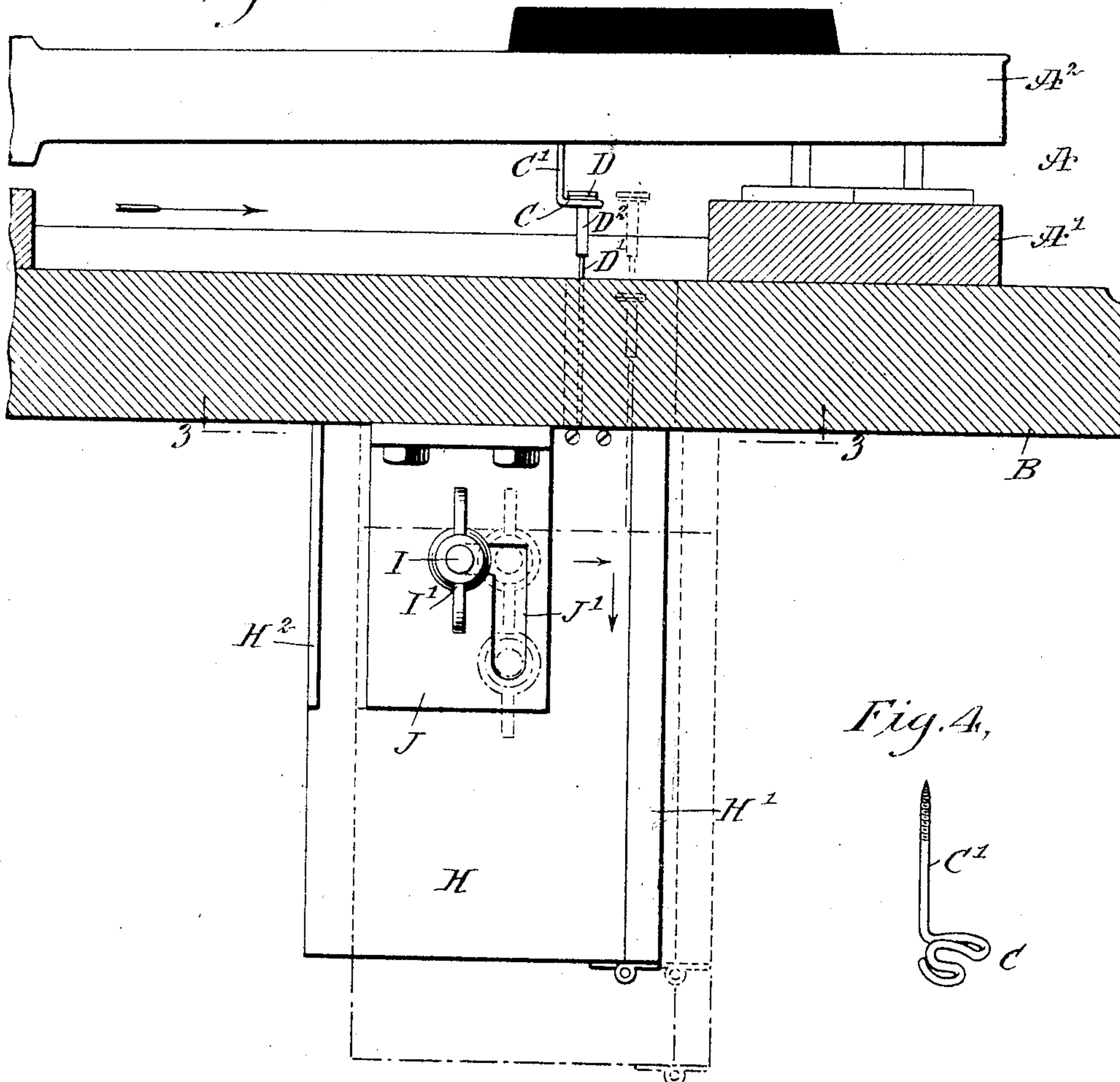
PATENTED JUNE 2, 1908.

G. HOCHMAN.  
PLAYER PIANO.

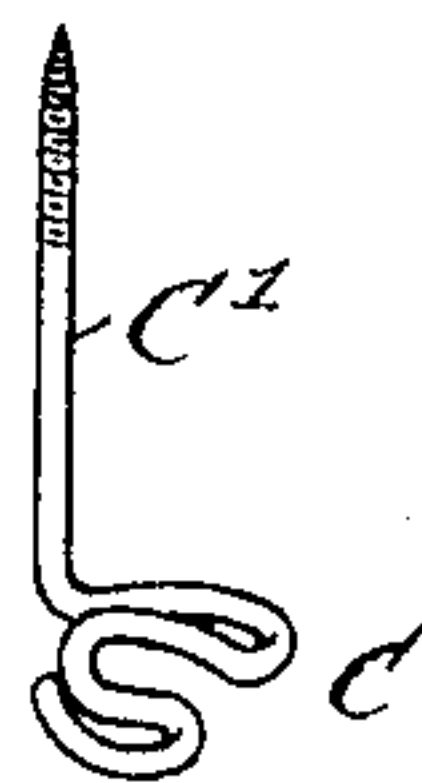
APPLICATION FILED MAR. 12, 1908.

2 SHEETS—SHEET 2.

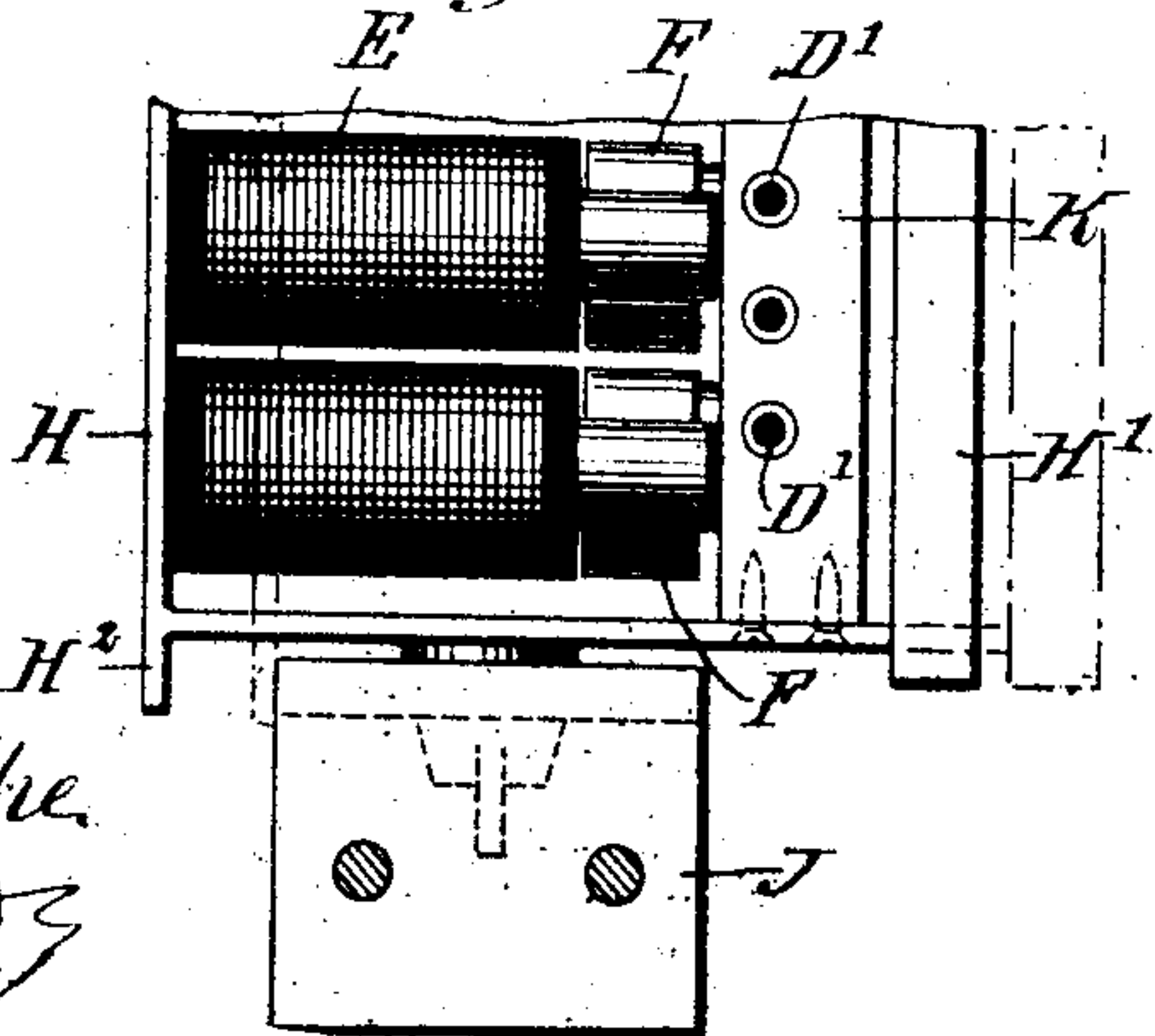
*Fig. 2.*



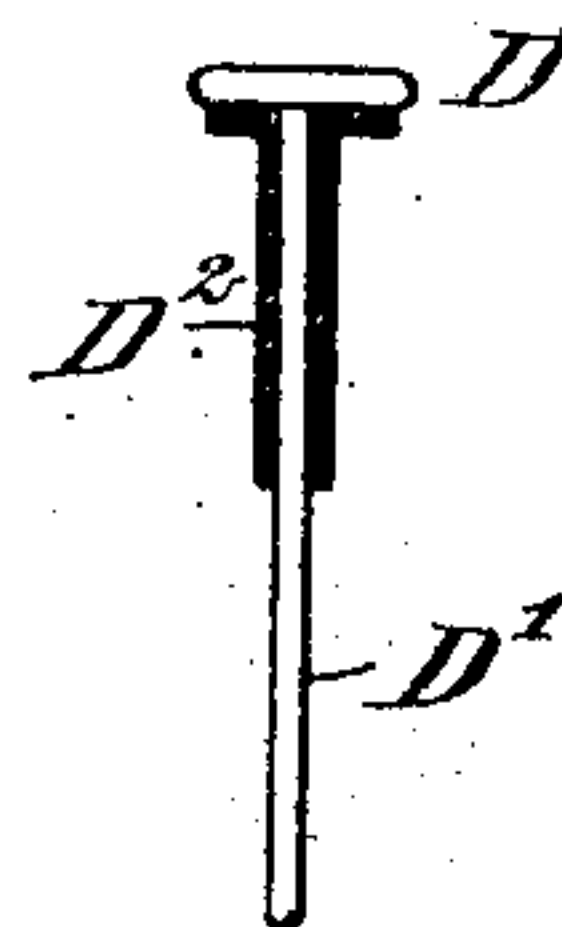
*Fig. 4,*



*Fig. 3,*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

GEORGE HOCHMAN, OF NEW YORK, N. Y.

## PLAYER-PIANO.

No. 889,685.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed March 12, 1908. Serial No. 420,711.

*To all whom it may concern:*

Be it known that I, GEORGE HOCHMAN, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented new and useful Improvements in Player-Pianos, of which the following is a full, clear, and exact description.

The invention relates to player pianos in which the piano keys are connected with electrical or pneumatic actuating devices.

The object of the invention is to provide certain new and useful improvements in player pianos, whereby actuating devices can be readily disconnected from the keys to allow convenient removal of the entire key board and keys whenever it is desired to repair the action or for other purposes.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional front elevation of part of a player piano of the electro-magnet type and on which the improvement is applied; Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1; Fig. 3 is a sectional plan view of the same on the line 3—3 of Fig. 2; Fig. 4 is a perspective view of one of the connection keepers for a key; and Fig. 5 is a sectional side elevation of one of the actuating rods.

A key board A of any approved construction consists of the key frame A', on which are mounted to swing the keys A<sup>2</sup> in the usual manner, and the said key frame A' is removably supported on the board B forming part of the piano frame.

On the under side of each key A<sup>2</sup> and near the front end thereof is held a horizontally disposed keeper C, preferably made of wire bent into a fork open at the front (see Fig. 4), the wire terminating in a vertically threaded shank C', screwing into the bottom of the key A<sup>2</sup>. Each of the keepers C is adapted to be engaged on top by the head D of an upright actuating rod D', forming part of the actuating mechanism for the key, the said actuating mechanism represented in the drawing being of electro-magnet type. A pair of electro-magnets E is provided with an oscillating

armature F, on which the lower end of the corresponding rod D' is secured by set screws G or other means, it being understood that an actuating device as described is employed for each key A<sup>2</sup>, to actuate the same whenever the corresponding electro-magnet is excited and causes its armature F to oscillate.

The actuating devices are mounted on a support H, preferably in the form of a box having a front door H' adapted to be swung downward into an open position, to permit access to the actuating devices for repairs and other purposes. The support H is provided at its ends with bolts I having wing nuts I' and extending through angular slots J' formed in the brackets J attached to the under side of the board B. The angular slots J' are L-shaped, that is, have horizontal and vertical portions, as plainly indicated in Fig. 2, to permit of sliding the support H and with it the actuating devices forward and then straight downward into the position shown in dotted lines in Fig. 2, so that the heads D move out of engagement with the keepers C and drop down below the top surface of the board B, as indicated in dotted lines in Fig. 2, to permit of removing the entire key board from the board B without interfering with the actuating devices.

It is understood that normally the bolts I extend in the rear of the horizontal portions of the angular slots J', so that the top of the support H abuts against the under side of the board B, and when the wing nuts I' are screwed up, the said support H is held firmly in position, and the heads D engage the keepers C. Now when a pair of electro-magnets E are excited and its armature F is caused to oscillate, then the corresponding rod D' is drawn downward so that its head D acts on the keeper C, to impart a swinging motion to the key A<sup>2</sup>, which, by the usual piano action, causes the sounding of the corresponding string.

When the electro magnets E are deenergized, the armature F returns to its previous position by the action of a spring or other means (not shown), and consequently the rod D' moves upward, thus allowing the key to swing back to its normal position of rest.

When it is desired to remove the key board, it is only necessary for the operator to loosen the wing nuts I' and then to draw the support H forward, so that the rods D' and their heads D disengage the keepers C, and then the support H is allowed to drop until



the bolts I rest on the bottom walls of the vertical portions of the slots J'. When this takes place the heads D of the rods D' are below the top surface of the board B, and consequently the keyboard A can be removed without the slightest interference with the actuating mechanism.

The support H is preferably provided at its top with an apertured rail K for guiding the rods D', as will be understood by reference to Figs. 1 and 3.

In order to prevent the support H from oscillating while being moved into a lowermost position or back to a normal position, the support is provided at its rear with side-wise extending flanges H<sup>2</sup>, adapted to abut against the brackets J at the time the support H is moved forward, and the bolts I move in the vertical portions of the slots J'. When the bolts I move in the vertical portions of the slots J', then the top of the support H abuts against the under side of the board B, and consequently oscillating of the support H is prevented when moved into either of the two positions above described.

The upper end of each rod D' and the under side of each head D is preferably provided with a covering D<sup>2</sup> of rubber or other suitable material, so as to prevent metallic contact between the keeper C and the actuating rod. As the keepers C are open at the front it is evident that the upper ends of the rods D' readily slide into the forks to engage the heads D with the tops of the keepers C, to establish connection between the actuating mechanisms and the keys A<sup>2</sup>.

By the arrangement described all the actuating mechanisms are quickly disconnected from the keys A<sup>2</sup> whenever it is desired to remove the key board A from the piano for repairs or other purposes. The actuating mechanisms can be readily re-connected with the keys after the key board has been placed back into the usual position on the piano frame.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A player piano provided with a keyboard, actuating devices having connections for removable engagement with the keys, and a removable support carrying the said actuating devices to permit of disengaging the said connections from the keys and to move the connections out of the path of the key board when placing the latter in position on the piano or removing it therefrom.

2. A player piano provided with a keyboard, having keys, and actuating devices removably connected with the said keys, the said actuating devices being bodily movable to disengage the actuating devices from the keys.

3. A player piano provided with a keyboard, having keys, and actuating devices

removably connected with the said keys, the said actuating devices being bodily movable to disengage the actuating devices from the keys and to move the actuating devices out of the path of the keyboard for the removal thereof, or for replacing it in position on the piano.

4. A player piano provided with a removable keyboard having its keys provided at the underside with open keepers, actuating devices each having a headed rod for removable connection with a corresponding keeper, and a movable support carrying the said actuating devices to connect and disconnect the said rods and the said keepers.

5. A player piano provided with a removable keyboard having its keys provided at the underside with open keepers, actuating devices each having a headed rod for removable connection with a corresponding keeper, a movable support carrying the said actuating devices, and a fixed guideway for said support to slide in a horizontal and vertical direction.

6. A player piano provided with a removable keyboard having its keys provided at the under side with open keepers, actuating devices each having a headed rod for removable connection with a corresponding keeper, a movable support carrying the said actuating devices, a fixed guideway for said support to slide in a horizontal and vertical direction, and means for holding the said support against oscillating while sliding it.

7. A player piano provided with a removable keyboard, having its keys provided at the under side with open keepers, actuating devices each having a headed rod for removable connection with a corresponding keeper, a movable support carrying the said actuating devices, and provided at its ends with bolts, and brackets having angular slots engaged by the said bolts.

8. A player piano provided with a removable keyboard, having its keys provided at the under side with open keepers, actuating devices each having a headed rod for removable connection with a corresponding keeper, a movable support carrying the said actuating devices, and provided at its ends with bolts, and at its back with flanges, and brackets having angular slots engaged by the said bolts, the back of the brackets being adapted to be engaged by the said flanges at the time the bolts reach the vertical portions of the said slots, and the top of the said support resting against the under side of the fixed keyboard base at the time the bolts are in the horizontal portions of the said slots.

9. A player piano provided with an open keeper on the under side of each key, and an actuating device carrying a headed rod for removable engagement with the said keeper.

10. A player piano provided with an open keeper on the under side of each key, and an



actuating device carrying a headed rod for removable engagement with the said keeper, the said rod having its upper portion and the under side of the head provided with a covering.

11. A player piano provided with a removable keyboard, having its keys provided at the under side with open keepers, actuating devices each having a headed rod for removable connection with a corresponding keeper, and a movable support carrying the said ac-

tuating devices to connect and disconnect the said rods and the said keepers, the said support having a guide rail for the said rods.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE HOCHMAN.

Witnesses:

THEO. G. HOSTER,  
EVERARD B. MARSHALL.