No. 839,557.

PATENTED DEC. 25, 1906.

J. W. DARLEY, JR.

SELF PLAYING PIANO.

APPLICATION FILED JULY 24, 1905.

4 SHEETS—SHEET 1.

Fig. 1.

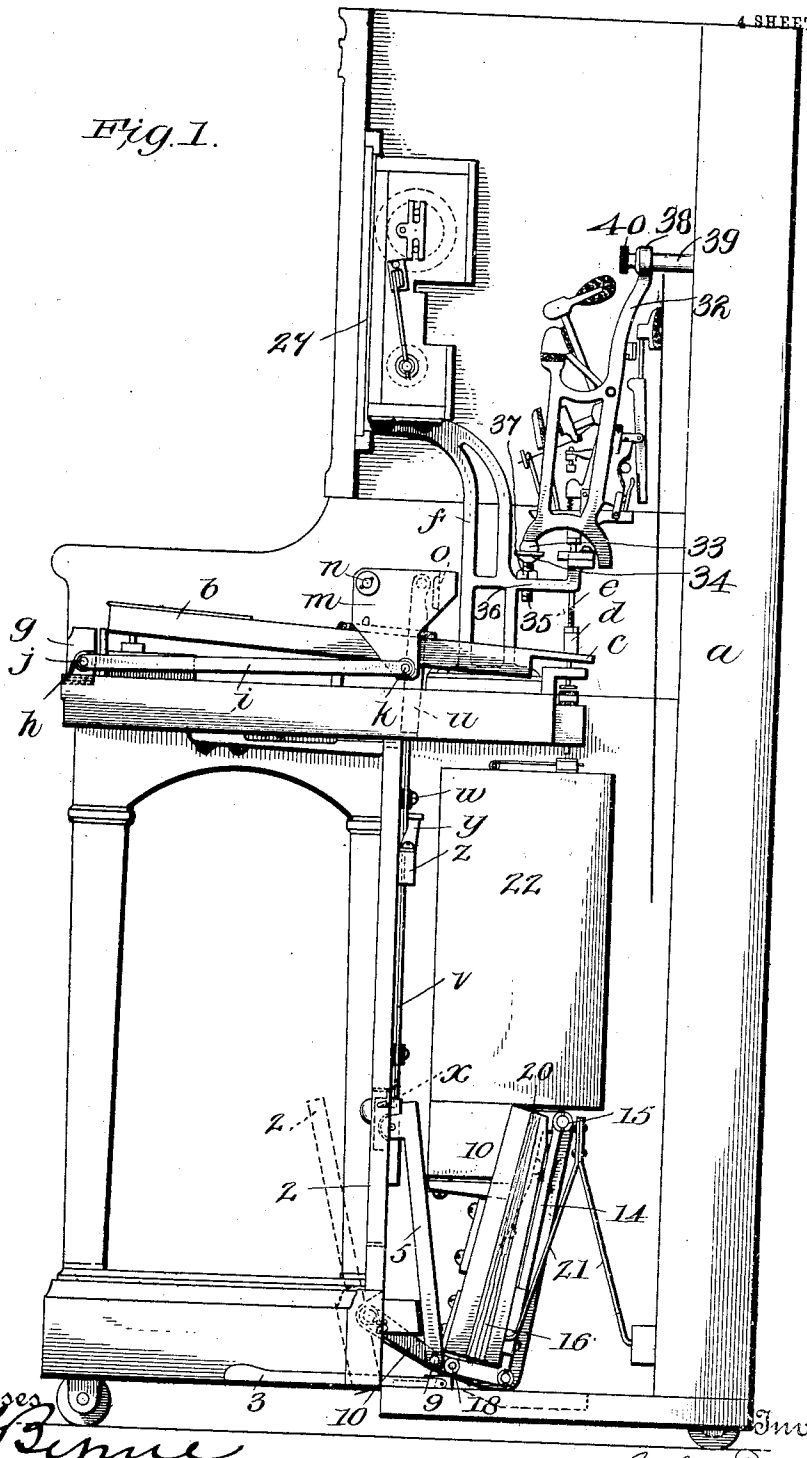

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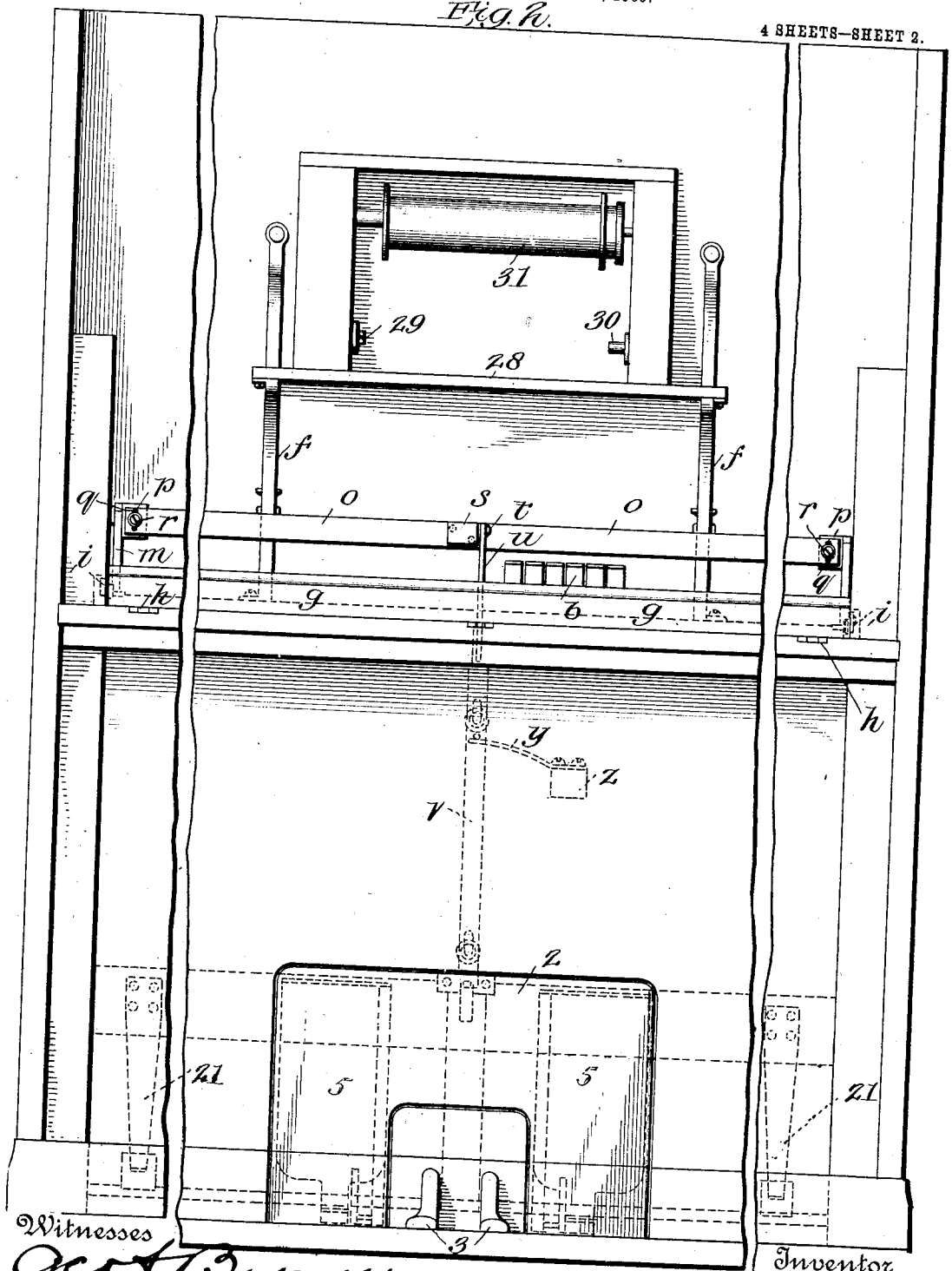
Fig. 2.

4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 3.

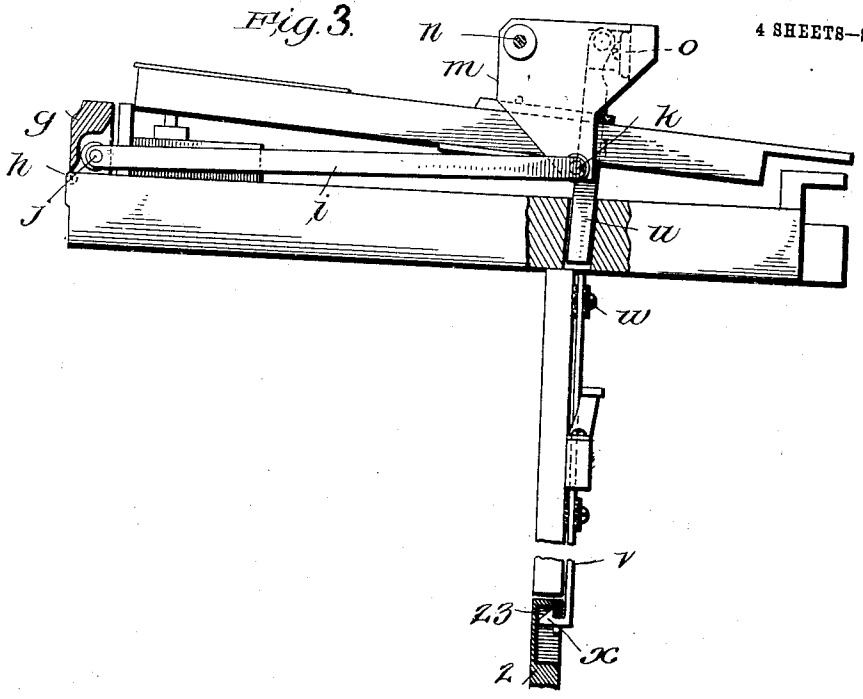
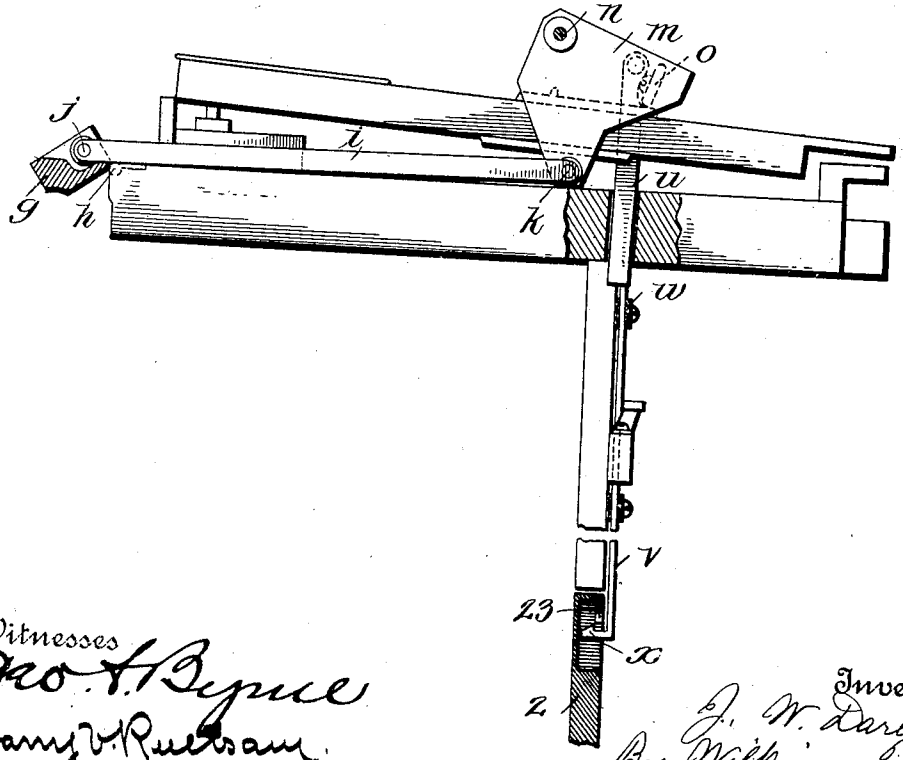


Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 5.

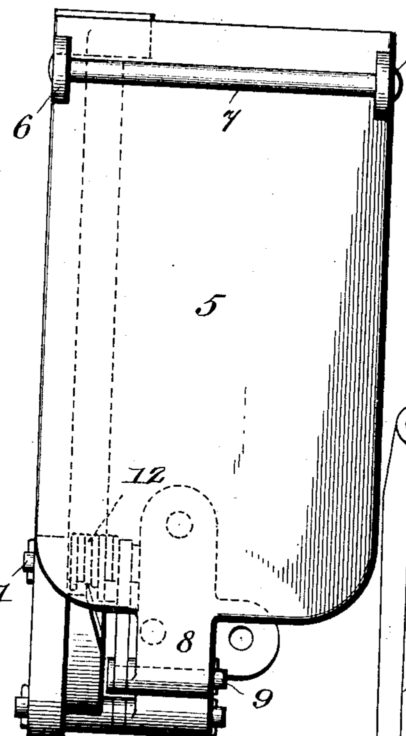


Fig. 7.

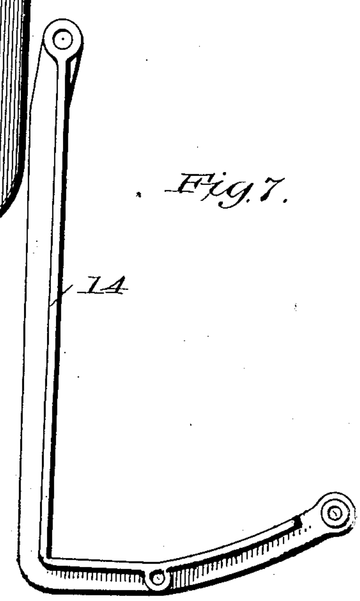


Fig. 6.

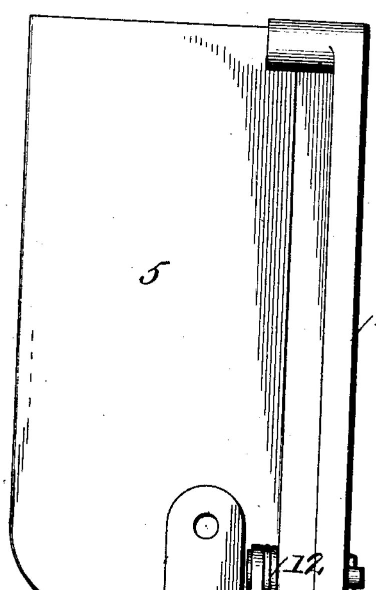


Fig. 8.

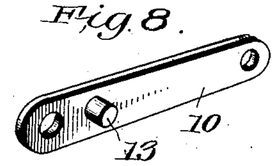
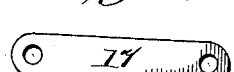


Fig. 9.



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UNITED STATES PATENT OFFICE.

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SELF-PLAYING PIANO.

No. 839,557. Specification of Letters Patent. Patented Dec. 25, 1906.

Application filed July 24, 1905. Serial No. 271,050.

To all whom it may concern:

Be it known that I, JOHN W. DARLEY, Jr., a citizen of the United States, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Self-Playing 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.

My invention relates to improvements in self-playing pianos or pianos of that class which may be played in the usual manner by an operator or in which the notes may be produced by the use of a traveling perforated sheet of paper.

The objects of my invention are to hold the keys stationary when the instrument is operated by pneumatic means, to provide perfectly-balanced pedals, a hand-rest for the operator, and a compound bracket which will support the devices holding the traveling sheet of paper and also support the piano-action.

Other objects and advantages will appear from the detailed description.

In the accompanying drawings, Figure 1 is an end elevation of my improved piano with the end casing removed. Fig. 2 is a broken front elevation of the same, some of the interior parts being shown in dotted lines. Figs. 3 and 4 represent the key-holding means in two positions, and Figs. 5, 6, 7, 8, and 9 represent details of the pneumatic apparatus.

a represents an upright piano of the ordinary type to which my improvements are applied.

b represents the keys, pivoted, as usual, a little back of the center thereof. Each of these keys is provided with a slotted extension *c*, which engages a stop *d* on a vertical rod *e*, which operates the piano-action in the usual way. This piano-action may be of the usual or any preferred type and will not be specifically described herein.

The holding devices for the traveling roll of paper and the piano-action are supported by a compound bracket, one member of which supports the holding devices and the other member of which is adjustable on said first-named member and supports the piano-action. Referring to Fig. 1, *f* represents the front member of said bracket, which supports the holding devices for the traveling roll of paper, and 32 represents the other member of said bracket. This member 32 has near its lower portion a rounded or ball-shaped portion 33, which fits into a cup-shaped portion 34, which in turn is carried by a screw-threaded pin 35, which passes through an arm 36 of the front member *f*. 37 represents a lock-nut for the screw-threaded pin 35. It is obvious that by the movement of the pin 35 the rear member 33 of the compound bracket will be adjusted relatively to the front member thereof. The upper part of the rear member 32 is provided with a perforated projection 38, which passes loosely over a pin 39, attached to the rear frame of the piano. A screw 40 serves to hold the member 32 on the pin 39.

In front of the keys and extending the full width thereof is a pivoted portion *g*, supported on the frame of the piano by hinges *h*. This portion is adapted to fold down into the position shown in Fig. 6, in which position it locks the keys against movement, as hereinafter described, and affords a convenient hand-rest for the operator. Near each end of this hand-rest is pivoted an arm *i*, which when the hand-rest is folded out, as shown in Fig. 6, rests upon the piano-frame, holding the hand-rest firmly in position. Each of these arms is pivoted to the hand-rest at one end, as shown at *j*, and at the other end is pivoted to the lower end of a triangular board *m*, which is attached to the piano-frame by means of the pivots *n*. One of these boards *m* is located on each side of the keys, and they are connected together by a bar *o*, secured to projections *p p* in the boards *m*. The bar *o* is slotted at each end, as shown at *q*, and is secured at each end to its corresponding projection *p* by a set-screw, such as *r*, the parts being therefore adjustably secured together.

Near the center of the bar *o* is attached an extension or ear *s*, provided with a pivot *t*, on which is pivoted an arm *u*, the lower end of which loosely engages the top of a spring-supported sliding bar *v*. This bar slides on screws *w*, attached to the frame of the piano and its lower end terminates in a hook *x*. A spring *y* is attached to a projection *z* and normally holds said arm *v* elevated in the position shown in Fig. 5, in which case the

keys are left free to be operated by a player in the usual manner. When the hand-rest *g* is swung outwardly, however, into the position shown in Fig. 6, the bar *o* is thrown down and comes in contact with the upper part of the keys behind their pivots, thus making it impossible for an operator to play the piano in the usual manner.

When the hand-rest *g* is folded forward, it disengages the hook *x* from a hooked portion 23 in the upper part of the footboard 2, whereupon the spring 12 forces said footboard out into the position shown in dotted lines in Fig. 1 or out to the dotted line 24 of Fig. 3. The footboard, however, is restrained from falling over to the position shown in Figs. 3 and 4 by the action of this spring, a point of decided advantage, as it obviates the liability of the footboard dropping upon the feet of the operator, which is a serious objection to most, if not all, of the footboards now in use on self-playing pianos. The folding forward of the hand-rest *g* also locks the keys, as already described, and the operator then puts his hand or foot upon the upper part of the footboard 2 and brings it down from the position shown in Fig. 1 to the position shown in Figs. 3 and 4, against the tension of the spring 12, which is strong enough to hold the footboard in the position shown in dotted lines in Fig. 1, if left alone, but which after the footboard is swung down into the position shown in Figs. 3 and 4 is not strong enough to lift it on account of the increased leverage. The spring 12 therefore acts as a counterbalance to the footboard and its connected parts. I do not wish to limit myself, however, by the use of this term to a construction in which the spring 12 exactly balances the footboard and its connected parts; but in the preferred construction each of the pedals 5 is exactly balanced by means of the construction described. As the operator presses the pedal down from the position shown in Fig. 3 to that shown in Fig. 5 he compresses the spring 12, which of course offers resistance. This resistance, together with the fact that the spring 12 has a larger leverage on the pedal 5 and footboard 2 when in the position shown in Fig. 3 than it has when in the position shown dotted in Fig. 1, balances the effect of gravity on those parts and causes them to remain in any position in which they may be placed. This is necessary, as it is evident that the effect of gravity on those parts will increase as they are moved from the position shown in Fig. 1 dotted, to the position shown in Fig. 3. The parts being in the position shown in Fig. 3, the pedal is depressed by foot to the position shown in Fig. 4, and during this motion of the pedal the leverage of the foot upon the bellows will increase, as will be evident from the construction of the pedal 5. link 10, and bell-crank lever 14.

27 represents a movable panel in front of the upper part of the brackets *f*, which supports a board 28, which in turn supports the frame for the paper-roll, which is mounted on the pivot-pins 29 and 30 and passes over a roll 31, all of these parts being of the usual construction. In the drawings many parts of any ordinary upright piano are shown; but it is unnecessary to describe these parts in detail, as they are well known, the particular features of novelty being pointed out in the claims.

Having thus described my invention, what I claim as new is—

1. In a self-playing piano, the combination of the piano-action and devices for supporting a movable roll of perforated paper, with a compound bracket for supporting said piano-action and said means, said bracket consisting of two members the members of said compound bracket being adjustable relatively to each other, substantially as described.

2. In a self-playing piano, the combination of normally free keys, a normally locked pedal device mechanism for playing the piano, a folding hand-rest, and means whereby the movement of said hand-rest locks the keys and unlocks the pedal device, substantially as described.

3. In a self-playing piano, the combination of a hand-rest pivoted on the front part thereof, keys normally free, a pedal device mechanism for playing said piano without the use of said keys, means for normally holding said pedal device locked, a bar extending over said keys, and connections whereby the movement of said hand-rest brings said bar into contact with said keys, thereby preventing their action, and at the same time unlocks the pedal device, substantially as described.

4. In a self-playing piano, the combination of the piano-action and devices for supporting a movable roll of perforated paper with a compound bracket consisting of two members for supporting said piano-action and said means, said bracket being supported by the piano-casing, and the members of said compound bracket being adjustable relatively to each other substantially as described.

5. In a self-playing piano, the combination of the piano-action and means for supporting a movable perforated roll of paper, with a compound bracket consisting of two members and having an upwardly-extending arm for supporting said means, and rearwardly-extending arms for supporting said piano-action, said bracket being supported inside of the piano, and the members of said compound bracket being adjustable relatively to each other substantially as described.

6. In a self-playing piano, the combination of a hand-rest pivoted near the front thereof, a pair of boards pivoted to the piano-frame, 13

and pivoted arms connecting said hand-rest and said boards, said arms being adapted when said hand-rest is folded out to rest solidly on the piano-frame, and a bar adjustably fastened to said boards and adapted to be brought down to lock the keys of the piano when the hand-rest is folded forward, substantially as described.

7. In a self-playing piano, the combination of the keys normally free to operate, a hand-rest pivoted on the front of the piano, links pivoted to said hand-rest near its ends, pivoted boards to which said links are attached, and a bar adjustably secured to said boards and adapted, when said hand-rest is folded forward, to engage said keys and prevent their operation, substantially as described.

8. In a piano, which includes self-playing mechanism, the combination of keys, a hand-rest pivoted to the front of said piano, a link pivoted to said hand-rest at one end, a pivoted board to which said link is attached at the other end, a bar extending across the piano and adjustably secured to said board, an arm extending downwardly from said bar, pedal devices to operate said mechanism for playing said piano without the use of the keys, a lock normally holding said pedal devices out of action, and connections whereby the folding forward of said hand-rest releases said lock, substantially as described.

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

J. W. DARLEY, JR.

Witnesses:
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