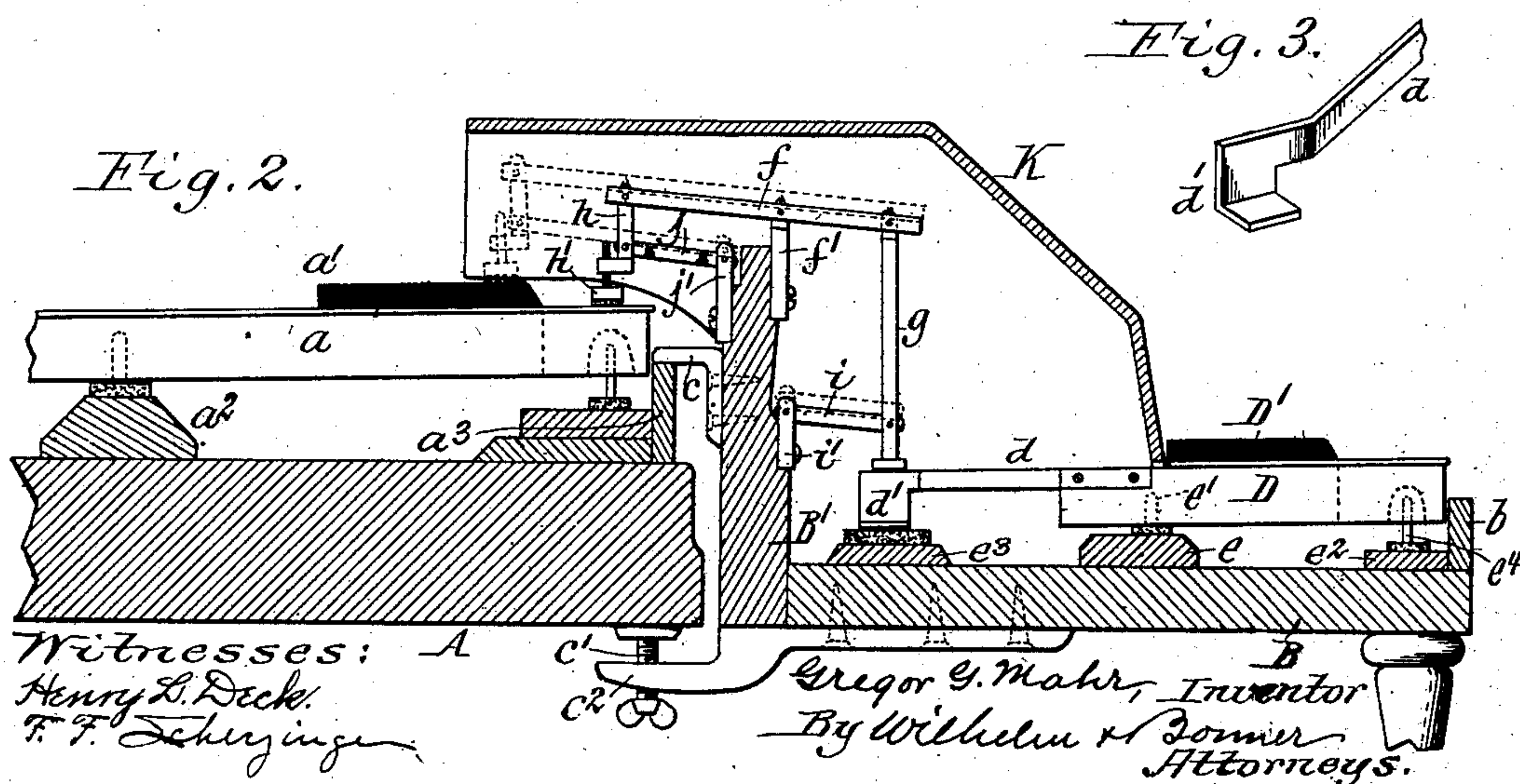
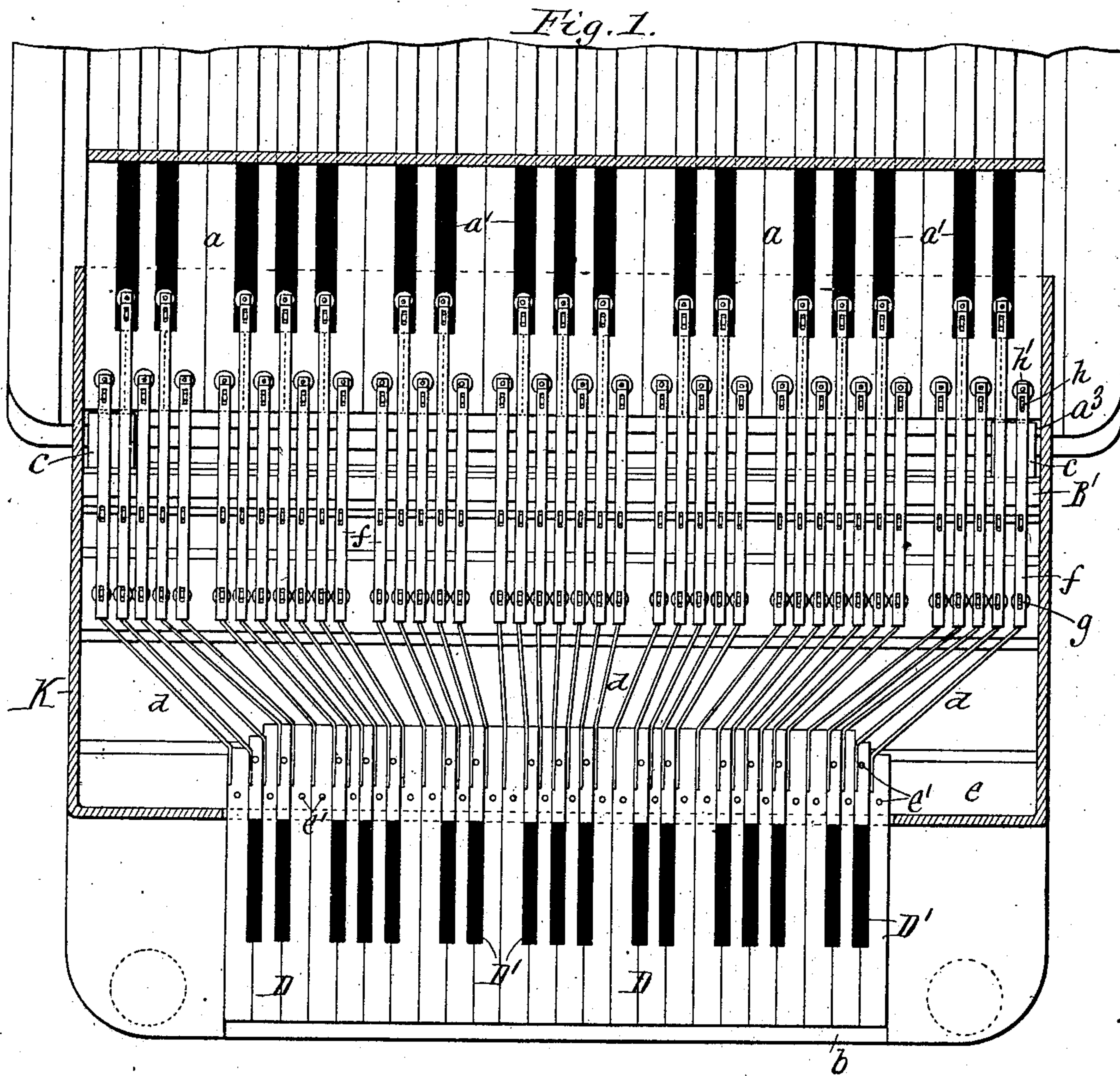


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KEYBOARD ATTACHMENT FOR PIANOS.

APPLICATION FILED FEB. 18, 1901. RENEWED AUG. 19, 1902.

NO MODEL.





# UNITED STATES PATENT OFFICE.

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## KEYBOARD ATTACHMENT FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 722,998, dated March 17, 1903.

Application filed February 18, 1901. Renewed August 19, 1902. Serial No. 120,264. (No model.)

*To all whom it may concern:*

Be it known that I, GREGOR G. MAHR, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Keyboard Attachments for Pianos, of which the following is a specification.

This invention relates to the class of piano attachments which comprise a supplemental or juvenile keyboard having narrower keys than those of the main keyboard to adapt them to the hands of children and intermediate actuating devices which transmit the movements of the juvenile keys to the corresponding keys of the ordinary keyboard.

The object of my invention is to improve and simplify the construction of the small keyboard and said intermediate actuating devices with a view of securing a more direct transmission of the movement from the small to the large keys, thereby reducing the friction and lost motion to a minimum and insuring a prompt response of the piano-action.

In the accompanying drawings, Figure 1 is a sectional top plan view of my improved attachment applied to an ordinary keyboard. Fig. 2 is a transverse vertical section thereof. Fig. 3 is a fragmentary perspective view of the rear end of one of the juvenile keys.

Like letters of reference refer to like parts in the several figures.

A is the key-bottom or stationary frame of the keyboard of an ordinary piano.

$a$   $a'$  are the ordinary white and black keys, which are fulcrumed upon the rail  $a^2$  in a well-known manner, and  $a^3$  is the customary key-slip.

B is the stationary key frame or bottom board of the juvenile keyboard, having a key-slip  $b$  at its front edge and a longitudinal wall or block  $B'$  at its rear edge. The key-frame B is adapted to be applied to the frame of the main keyboard immediately in front of the latter and for this purpose is provided at its rear side with suitable attachments, such as lips  $c$ , which overlap the main key-slip  $a^3$ , and clamping-screws  $c'$ , which are arranged in rearwardly-extending lugs  $c^2$  of the bottom board B and bear against the under side of the main key-bottom A, as shown in Fig. 2.

D D' are the comparatively narrow white

and black keys of the juvenile keyboard, which are fulcrumed between their ends upon a center rail  $e$  of the supplemental key-bottom B by the customary vertical pins  $e'$  or other suitable means.

$e^2$  is the front rail, and  $e^3$  the back rail, of the supplemental key-bottom, both of these rails being faced with felt and the front rail having the usual guide-pins  $e^4$  for the juvenile keys.

The front or body portion of the juvenile keys are made of wood, as usual; but their rear portions preferably consist of flexible metallic strips or extensions  $d$ , secured to one side of the wooden body portions and provided at their rear ends with feet or enlargements  $d'$ , which are arranged to strike the cushioned face of the back rail  $e^3$ . The movement of each juvenile key is transmitted to the corresponding main key by the following mechanism:

$f$  is a transverse rock-lever arranged above the block  $B'$  and pivoted between its ends to a standard  $f'$ , secured to said block, or, if desired, the lever may be fulcrumed directly upon the block.

$g$  is a vertical rod or sticker pivoted at its upper end to the front arm of the rock-lever  $f$  and having its lower end, which is preferably headed, arranged directly over the metallic rear arm  $d$  of the corresponding juvenile key, so that the depression of said key causes its rear arm to lift the sticker  $g$  and rock the lever  $f$ .  $h$  is a similar depending rod or sticker pivoted to the rear arm of the rock-lever  $f$  and preferably provided at its lower end with a vertically-adjustable head or button  $h'$ , arranged directly over the corresponding main key, so that when the lever  $f$  is actuated by the juvenile key it causes the rear sticker  $h$  to depress the corresponding main key.

$i$  is a vertically-swinging guide or steady-link connecting the lower portion of the front sticker  $g$  with the block  $B'$  and preferably pivoted at its rear end to a bifurcated lug or standard  $i'$  on said block.  $j$  is a similar guide-link connecting the lower portion of the rear sticker  $h$  with a standard  $j'$  on said block. These links cause the stickers  $g$  and  $h$  to move vertically in a substantially rectilinear path, preventing lateral play or rub-



bing of their lower ends against the key extensions *d* and the main keys and insuring a smooth action of the keys.

As the black keys of the main keyboard extend above the plane of its white keys and are arranged farther back than said keys, the rock-levers *f*, which coöperate with the black keys, are correspondingly longer and higher than the rock-levers of the white keys, and the corresponding stickers *g* and standards are lengthened in the same measure, as shown by dotted lines in Fig. 2.

The rock-levers *f* are arranged in line with the main keys, respectively, and as the juvenile keyboard is narrower than the main keyboard the rear extensions *d* of the juvenile keys are bent obliquely or diverged rearwardly on opposite sides of the center of the juvenile keyboard in order to meet the front stickers *g*, as shown. By making these key extensions of sheet metal they can be readily bent at the necessary varying angles. Owing to this diverging arrangement of the key extensions those extensions near the ends of the keyboard where their angles are comparatively sharp are liable to interfere. To prevent this, a number of the keys at the ends of the juvenile keyboard are stepped at their inner ends or cut off progressively shorter toward the ends of the board, as shown in Fig. 1, by which construction the end key extensions amply clear each other.

The juvenile keys after being depressed are elevated to their normal position by the main keys through the intermediate levers *f* and stickers *g h*.

K is a suitable casing which incloses said intermediate mechanism and the rear portions of the juvenile keys and which is secured to the frame of the juvenile keyboard.

It will be observed that by my improved construction the motion of the juvenile keys is transmitted to the ordinary keys by the use of a single rock-lever, thereby obtaining a nearly direct action. This minimizes the friction and lost motion between the parts and renders the action of the juvenile and main keys practically simultaneous, enabling compositions to be rendered upon the juvenile keyboard with the same precision and effect as upon the ordinary keyboard.

A keyboard constructed in accordance with my invention has the desirable quality of touch characteristic of the standard grand pianos.

By my improved construction and arrangement the juvenile keys are located below the plane of the main keys, rendering them more convenient for children.

The juvenile keyboard can obviously be made of various sizes to suit children of different ages.

I claim as my invention—

1. In a piano attachment, the combination

with a key-frame provided on its rear portion with a block or support, of keys fulcrumed between their ends in said frame, transverse rock-levers fulcrumed on said block, rear stickers connected to the rear arms of said rock-levers and arranged to depress the keys of an ordinary piano, and front stickers connected to the front arms of said levers and arranged to be engaged by the rear arms of said key-levers, substantially as set forth.

2. In a piano attachment, the combination with a key-frame provided on its rear portion with a block or support, of keys fulcrumed between their ends in said frame and provided with rearwardly-diverging extensions rigidly secured thereto, transverse rock-levers fulcrumed on said block, rear stickers connected with the rear arms of said rock-levers and arranged to depress the keys of an ordinary piano, and front stickers connected with the front arms of said levers and arranged over and adapted to be engaged by said key extensions, respectively, substantially as set forth.

3. In a piano attachment, the combination with a key-frame provided on its rear portion with a block or support, of keys fulcrumed in said frame, transverse rock-levers fulcrumed on said block, rear stickers connected to the rear arms of said rock-levers and arranged to depress the keys of an ordinary keyboard, front stickers connected to the front arms of said levers and arranged to be engaged by the rear arms of said key-levers, and steadying means for said stickers acting to cause the same to move in substantially rectilinear paths, substantially as set forth.

4. In a piano attachment, the combination with a key-frame provided on its rear portion with a block or support, of keys fulcrumed between their ends in said frame, transverse rock-levers fulcrumed on said block, rear stickers connected to the rear arms of said rock-levers and arranged to depress the keys of an ordinary piano, front stickers connected to the front arms of said levers and arranged to be engaged by the rear arms of said key-levers, and steadying-links which connect the lower portions of said stickers with said block or support, substantially as set forth.

5. In a piano attachment, the combination with a key-frame, of keys fulcrumed in said frame and provided at their rear ends with rearwardly-diverging extensions which are rigidly secured thereto and arranged to actuate said operating devices, the keys at and near the ends of the keyboard being stepped progressively shorter at their rear ends, substantially as set forth.

Witness my hand this 9th day of February, 1901.

GREGOR G. MAHR.

Witnesses:

CHARLES A. GIANELLI,  
THEO. L. POPP.