

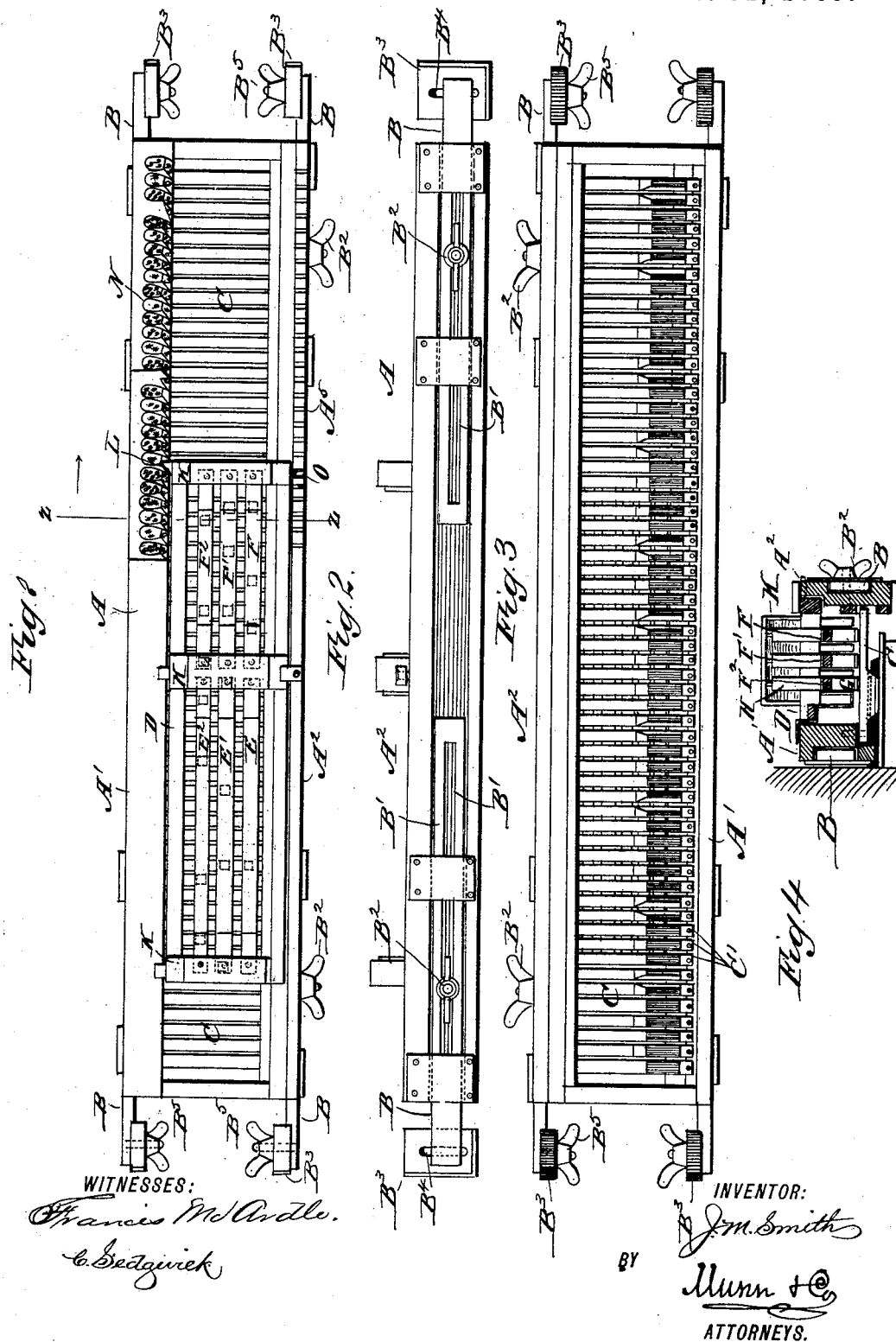
(No Model.)

2 Sheets—Sheet 1.

J. M. SMITH.  
HARMONIC KEY BOARD ATTACHMENT.

No. 418,388.

Patented Dec. 31, 1889.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## HARMONIC KEY-BOARD ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 418,388, dated December 31, 1889.

Application filed May 10, 1889. Serial No. 310,255. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN MELVIN SMITH, of Leetonia, in the county of Tioga and State of Pennsylvania, have invented a new and Improved Organ Attachment, of which the following is a full, clear, and exact description.

The invention relates to musical instruments—such as organs, pianos, &c.—the object of the invention being to provide a new and improved attachment, which is simple and durable in construction and permits the performer to play any desired chords without much study or practice.

The invention consists of a set of false keys adapted to rest on top of the regular keys of the organ or piano, and of longitudinally-extending bars held to slide vertically and provided with projections adapted to engage the said false keys.

The invention also consists in certain parts and details and combinations of the same, as will be hereinafter described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement. Fig. 2 is a side elevation of the same. Fig. 3 is an inverted plan view of the same. Fig. 4 is a transverse section of the same on the line  $z z$  of Fig. 1. Fig. 5 is an enlarged plan view of part of the improvement, parts being in section. Fig. 6 is a longitudinal sectional elevation of the same on the line  $x x$  of Fig. 5. Fig. 7 is a sectional side elevation of a number of the false keys, on the line  $y y$  of Fig. 5. Fig. 8 is a transverse section of the same, and Fig. 9 is a sectional side elevation of a bar-fastening of modified form.

The improved attachment is provided with a rectangular frame A, having in its side beams  $A'$  and  $A^2$  suitable guideways in which are held to slide longitudinally-extending bars B for fitting the attachment to an organ or piano of any size. Each bar B is provided with a longitudinally-extending slot  $B'$ , through which passes a thumb-nut  $B^2$ , screwing in the sides  $A'$  and  $A^2$  of the frame A, and serving to lock the bars B in place

when extended in proper position. On the outer end of each bar B is held a vertically-adjustable block  $B^3$ , provided with a vertical slot  $B^4$ , through which passes a thumb-nut  $B^5$  for securing the block  $B^3$  on the bar B in any vertical position. When the thumb-nuts  $B^5$  are loosened, the blocks  $B^3$  can be raised or lowered to raise or lower the frame A over the key-board of the piano or organ. (See Fig. 6.) The blocks  $B^3$  abut against the sides of the piano or organ frame and rest upon the rail next to the key-board, as is plainly shown in Fig. 6.

On the under side of the main frame A are held the transversely-extending false keys C, pivoted at  $C'$  to the side beam  $A'$  and extending at the other end between two lugs  $A^3$ , secured to the side rail  $A^2$  of the main frame A. On the under side of each false key C is formed a projection  $C^2$ , adapted to rest on top of a key of the regular key-board of the piano or organ, as illustrated in Figs. 4 and 6.

In order to deaden the noise of the keys C, I provide their outer ends with a soft material  $C^3$  on the top and bottom, so that when the lever C strikes against the lugs  $A^3$  the noise is deadened. The bottom of the projection  $C^2$  is also provided with soft material  $C^4$ , so as not to mar or scratch the keys of the organ or piano, at the same time deadening the noise when actuating the keys. In order to prevent the several keys C from touching each other, I guide their outer free ends between vertical bars  $A^4$ , secured vertically between the lugs  $A^3$ , as is plainly shown in Fig. 7.

On the top of the main frame A is mounted to slide in suitable guideways a small carriage D, having cross-beams  $D'$ ,  $D^2$ , and  $D^3$ , in the under side of which are formed guideways  $D^4$ , in which are mounted to slide vertically the bars  $E$   $E'$   $E^2$  and  $F$   $F'$   $F^2$ , the bars E and F extending in line with each other, the bars  $E'$  and  $F'$  and the bars  $E^2$  and  $F^2$  extending similarly, as is plainly shown in Fig. 5. On the under side of each bar E,  $E'$ ,  $E^2$ , and F,  $F'$ , and  $F^2$  are secured downwardly-extending projections G, arranged in such a manner that the several projections of one bar engage a certain number of the false keys C, said number of false keys, when pressed

downward, engaging the corresponding regular keys of the piano or organ, which keys produce one change of chord. As the projections on the several bars are differently arranged, different changes of one chord are played when the said bars are pressed downward; but changes of chords are only produced by shifting the carriage, as hereinafter more fully described.

The bars E, E', and E<sup>2</sup>, and F, F', and F<sup>2</sup> are each provided with a set of upwardly-extending arms H, against the upper end of each of which presses the end of a coil-spring I, held on a rod J, fixed in a casing K, secured on top of the cross-bars D', D<sup>2</sup>, and D<sup>3</sup>, respectively. The springs I have the tendency to hold the bars E, E', E<sup>2</sup>, F, F', and F<sup>2</sup> in an uppermost position, said bars resting against the tops of their guideways D<sup>4</sup> in the cross-beams D', D<sup>2</sup>, and D<sup>3</sup>. Instead of employing the rod J, I may employ a bolt J', extending upward from the bars E and F into the casing K and provided with a head J<sup>2</sup>, on which the spring I presses, as illustrated in Fig. 9.

When the bars are pressed downward, they press false keys corresponding to the projections G on the said bars. As soon as the operator releases the pressure on the respective bar, the springs I previously compressed return the bar to its uppermost position. In order to deaden the noise of contact between the projections G and the false keys C, I provide the lower ends of the projections with soft material G'.

On one outer end of the carriage D is held a pointer L, adapted to point over marks N, placed on the side bar A' of the main frame A. The several marks N are placed alongside each other, and represent, by the proper characters being written in them, the several chords usually appearing in written music. The carriage D can be moved forward and backward on the main frame A, so that the pointer L can be brought over any one of the marks N. Opposite the pointer L on the carriage D is located a pin O, adapted to engage one of the notches or holes A<sup>5</sup> formed in the top of the side bar A<sup>2</sup>. The notches or holes A<sup>5</sup> correspond with the marks N, so that when the carriage D is adjusted longitudinally and the pointer L is over one of the marks N the pin O engages the opposite notch or hole A<sup>5</sup>, and thereby holds the carriage D in place on the main frame A.

The operation is as follows: When the operator desires to use the attachment on a certain sized piano or organ, he places the frame A over the key-board and adjusts the extension-bars B until the blocks B<sup>3</sup> rest against the outer side of the piano-frame. The blocks B<sup>3</sup> are adjusted vertically on the bars B so that the false keys C are in an uppermost position, as shown in Fig. 8, and rest on top of the regular keys of the piano or organ, as illustrated in Figs. 4 and 6. The operator now moves the carriage D longitudinally on the main frame A until the pointer

L is over the mark N containing the respective chord to be played. As shown in the drawings, the pointer L stands over the key of E<sup>b</sup>, or of three flats. When the operator now presses the first bar F, its projections G press down the corresponding number of false keys C, which, by their projections C<sup>2</sup> press the corresponding regular keys of the piano or organ, thereby producing the first change of the chord E<sup>b</sup>, (E-flat.) When the operator releases the pressure on the bar F, its springs I return it to its former position, the regular and false keys also returning to their normal position. When the operator next presses the bar F', the projections G press the corresponding false keys C, which press the regular keys of the piano or organ, and the second change in the chord of E<sup>b</sup> (E-flat) is produced. When the third bar F<sup>2</sup> is pressed, the third change in the chord of E<sup>b</sup> (E-flat) takes place. Now, when the operator desires to play in another key, he moves the frame D upward slightly, so as to disengage the pin O from the notch or hole A<sup>5</sup>, and then shifts the carriage D until the pointer L is over the desired mark N indicating the respective chord to be played. In a similar manner the bars E, E', and E<sup>2</sup> are operated by the other hand over their corresponding false keys, actuating the regular keys of the piano or organ. It is understood that it takes but very little time to shift the carriage D from one chord to another, according to the music to be played.

It will be seen that the various chords as written in the music can be quickly played by simply pressing the various bars after the carriage D has been adjusted. Thus it requires very little practice and hardly any study of music to play the usually very difficult chords appearing in the music. It is further understood that the projections G operating the bars E, E', E<sup>2</sup>, F, F', and F<sup>2</sup> are so arranged as to produce the correct chords. The marks N are so arranged on the frame A that the projections G of the several bars E, E', E<sup>2</sup>, F, F', and F<sup>2</sup> come over the chords indicated in the respective marks.

When two false keys are alongside each other, their opposing sides are preferably beveled, as illustrated in Fig. 6, so as to prevent the false key from touching two regular keys at a time.

It is understood that the above-mentioned chords are the major chords which have their relative minor chords. When minor chords are used, each attachment can be furnished, if desired, with an extra carriage, like D, having bars E, E', E<sup>2</sup>, F, F', F<sup>2</sup>, F<sup>3</sup>, F<sup>4</sup>, and F<sup>5</sup>, with projections to work the false keys, which, when pressed, will play the regular keys of organ, so as to produce the major or minor chords.

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

1. In an organ attachment, the combination, with a main frame provided with adjustable

bars to fit the frame into an organ of any size, of a carriage held to slide on the said main frame, a pointer held on the said carriage and adapted to indicate on markings on the said frame, spring-pressed bars held to slide in the said carriage and provided on their under sides with projections, and false keys pivoted on the under side of the main frame and adapted to be engaged by the said projections, substantially as shown and described.

2. In an organ attachment, the combination, with the main frame provided in its side beams with guideways, of extension-bars held to slide in the said side beams, and thumb-screws for fastening the said extension-bars in place on the side beams of the main frame, substantially as shown and described.

3. In an organ attachment, the combination, with the main frame provided in its side beams with guideways, of extension-bars held to slide in the said side beams, thumb-screws for fastening the said extension-bars in place on the side beams of the main frame, and vertically-adjustable blocks held on the outer ends of the said extension-bars, substantially as shown and described.

4. In an organ attachment, the combination, with a carriage mounted to slide and provided with vertically-extending guideways, of bars held to slide in the said guideways and provided on their under sides with projections, and springs pressing the said bars in an uppermost position, substantially as shown and described.

5. In an organ attachment, the combination, with a main frame set over the key-board of the organ and provided with marks indicating chords and arranged with relation to the regular keys of the organ, of false keys pivoted on the said main frame and engaging the regular keys of the organ, and bars each mounted to slide in vertical guideways on the carriage and provided with a number of projections adapted to press the said false keys to sound the chord, and springs at the ends of the bars pressing them upwardly, substantially as shown and described.

6. In an organ attachment, the combination, with a main frame set over the key-board of the organ and provided with marks indicating chords and arranged with relation to the regular keys of the organ, of false keys pivoted on the said main frame and engaging the regular keys of the organ, bars each provided with a number of projections adapted to press the said false keys to sound a chord, a carriage held to slide in the said main frame and provided with a pointer indicating on the said marks, spring-pressed bars held to slide in the said carriage and provided with projections for pressing the said false keys, and springs for holding the said bars in an uppermost position, substantially as shown and described.

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Witnesses:

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JAS. L. SNYDER.