No. 780,456. PATENTED JAN. 17, 1905.

S. W. THACKERAY.

INSTRUMENTAL KEYBOARD.

APPLICATION FILED DEC. 12, 1903.

4 SHEETS—SHEET 1.

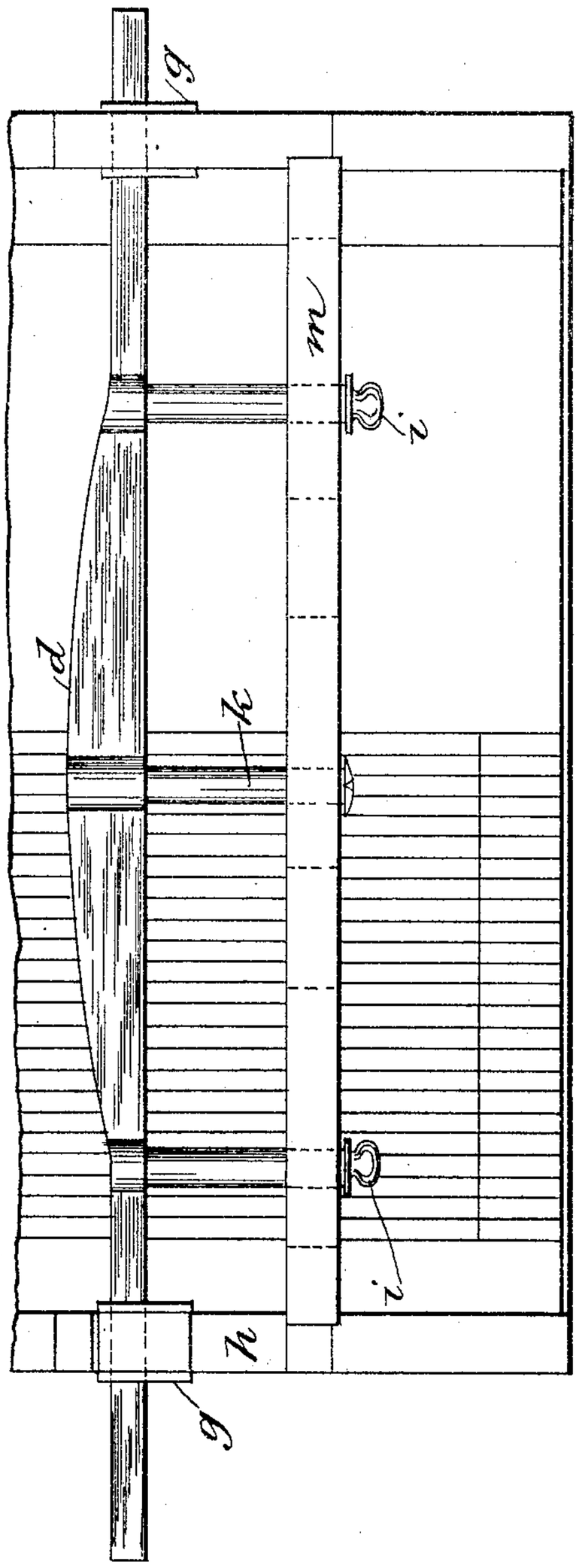

Fig. 1.

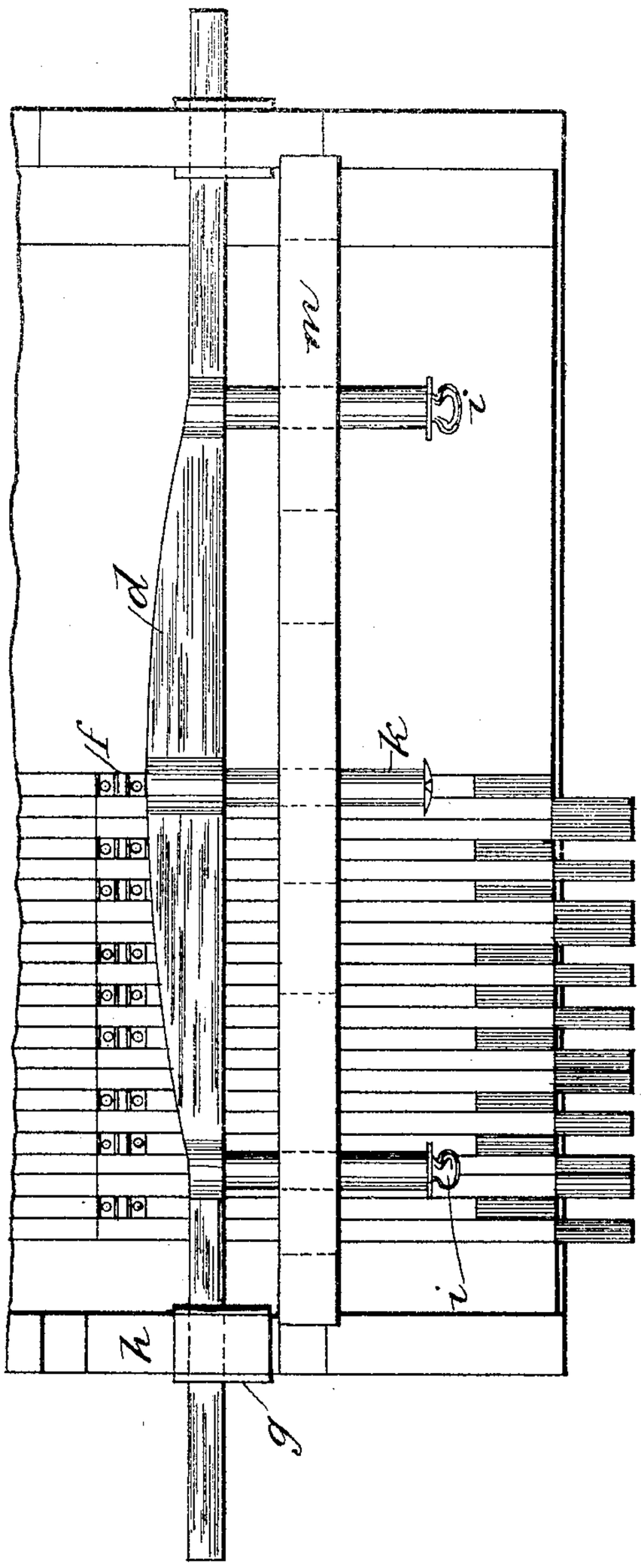

Fig. 2.

Witnesses.
W. Mau. Durall
Geo. H. Byrne.

Inventor.
S. W. Thackeray.
By Wilkinson & Fisher
Attorneys.

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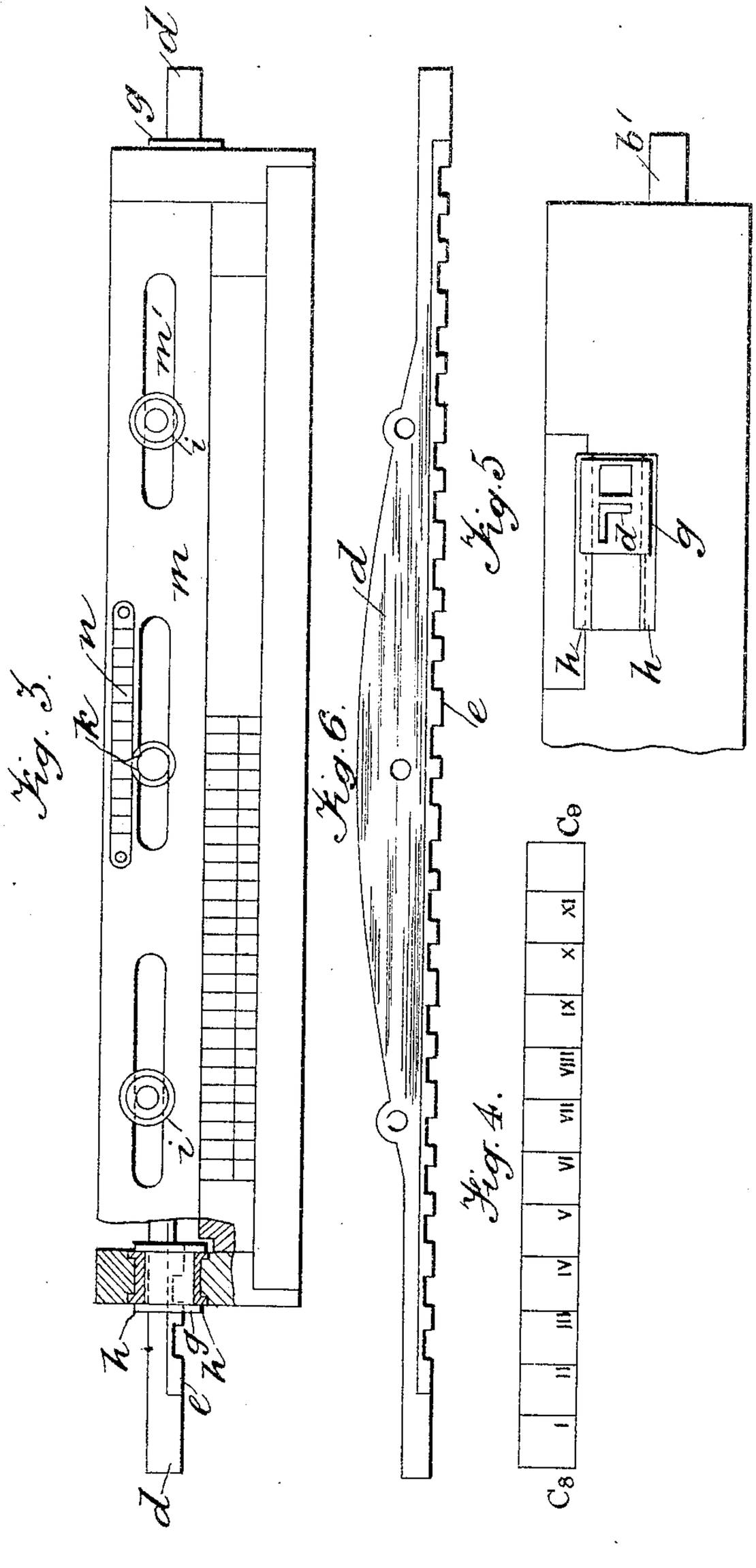

Witnesses.

W. Max. Dunall.

Geo. H. Bryce.

Inventor:

S. W. Thackeray

By Wilkinson & Fisher

Attorneys.

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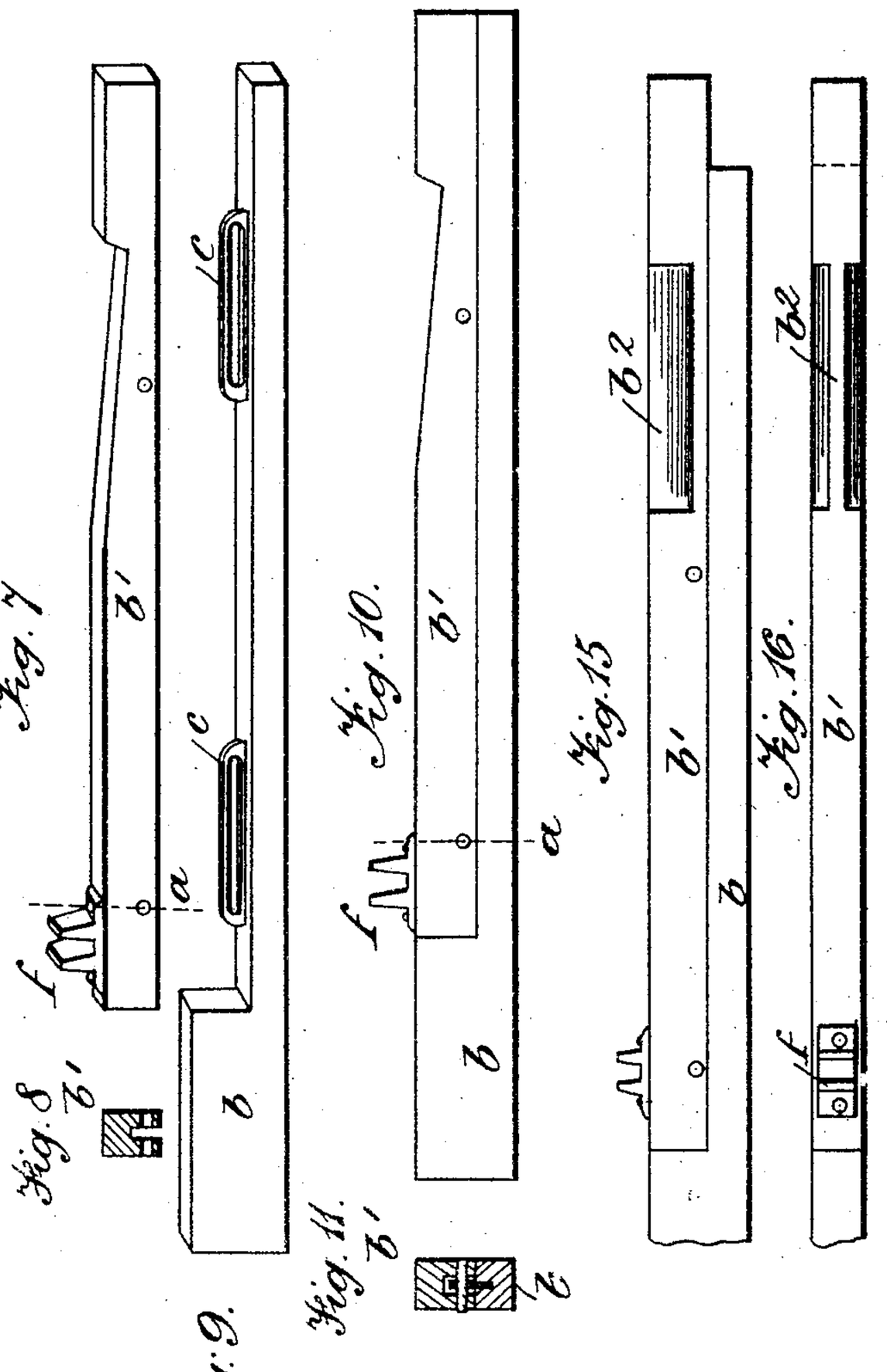
4 SHEETS—SHEET 3.



Witnesses
W. Mar. Duvall.
Geo. T. Pierce.

Inventor:
S. W. Thackeray
By Wilkinson & Fisher.
Attorneys.

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4 SHEETS—SHEET 4.

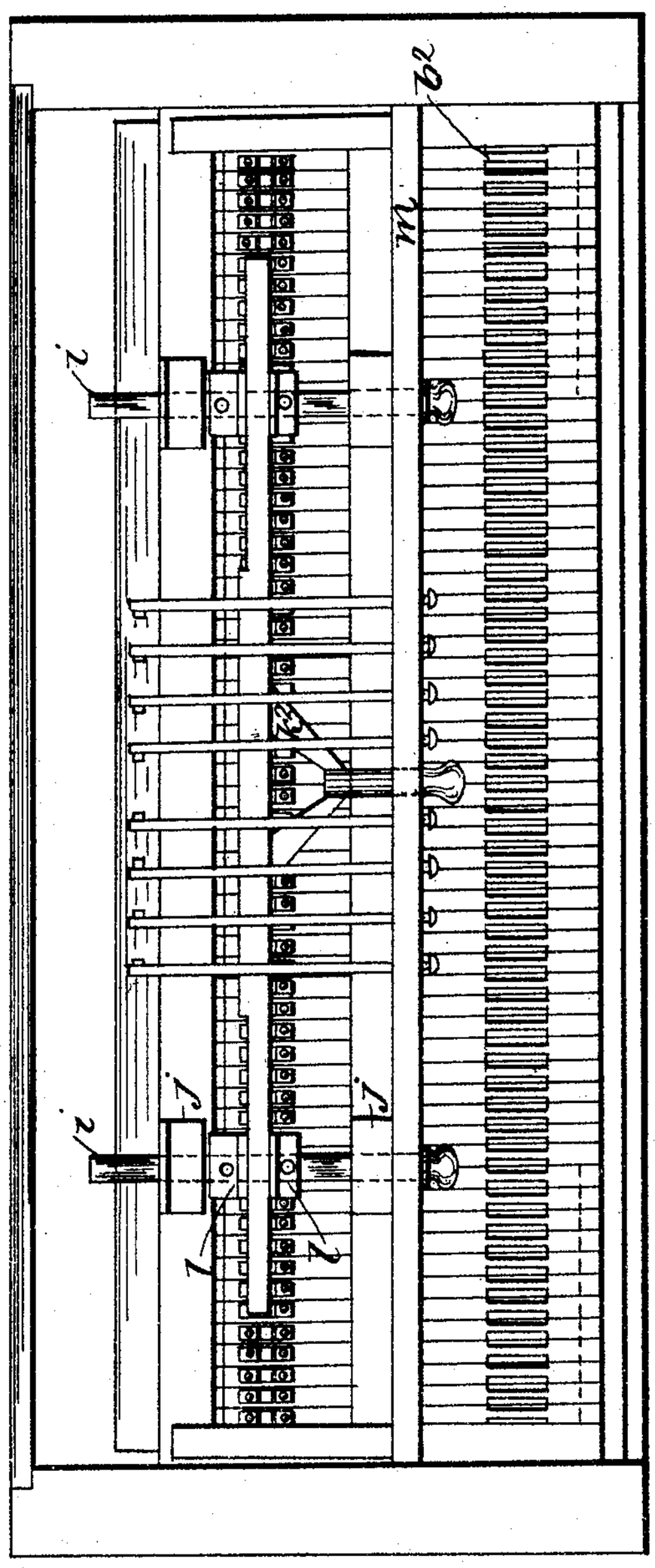

Fig. 12.

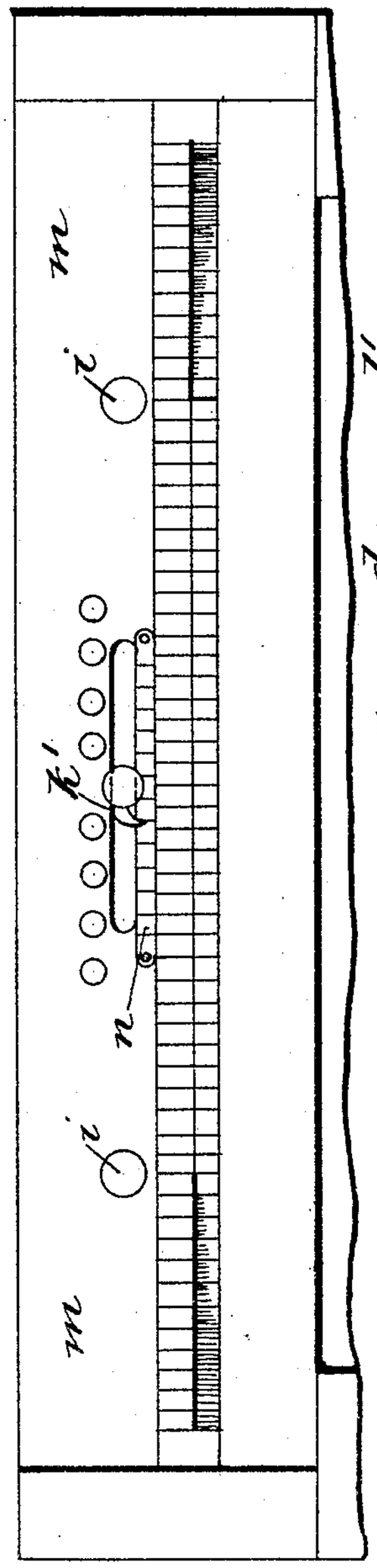

Fig. 13.

Fig. 14.

Witnesses
W. May. Durall
Geo. F. Bruce.

Inventor:
S. W. Thackeray.
By Wilkinson & Fisher.
Attorneys

No. 780,456. Patented January 17, 1905.

UNITED STATES PATENT OFFICE.

SAMUEL WHITFIELD THACKERAY, OF LONDON, ENGLAND.

INSTRUMENTAL KEYBOARD.

SPECIFICATION forming part of Letters Patent No. 780,456, dated January 17, 1905.

Application filed December 12, 1903. Serial No. 184,992.

To all whom it may concern:

Be it known that I, SAMUEL WHITFIELD THACKERAY, a subject of the King of Great Britain, residing at 72 McLeod road, Abbey Wood, London, in the county of Kent, England, have invented a certain new and useful Improvement in Instrumental Keyboards, of which the following is a specification.

My invention relates to instrumental keyboards more particularly for use on pianos; and its object is to provide a keyboard adapted for playing music at any absolute pitch.

To the accomplishment of this object and such others as may hereinafter appear the invention comprises the novel construction and combinations of parts hereinafter described, and particularly pointed out in the appended claims, reference being had to the drawings attached hereto, showing the preferred embodiment of the apparatus.

In the accompanying drawings, Figures 1 and 2 are plan views of the keyboard with the transposing-bar and name-rail fitted thereto. Fig. 1 shows the keys in alinement, as is the case when the instrument is not being played upon, and Fig. 2 shows a portion of the keyboard in which certain of the keys have been protruded in consequence of the transposing-bar having been pulled forward. Fig. 3 is a front view of such keyboard and name-rail. Fig. 4 shows the index-plate with the divisions marked thereon. Fig. 5 shows in elevation one of the guide-boxes fitted in the side of the case of the instrument in which an aperture may have been made for the purpose and through which the transposing-bar protrudes outside the case of the instrument. Fig. 6 shows the elevation of the transposing-bar and on its lower edge the teeth which engage with the catches on the upper surface of the keys. Fig. 7 shows the upper half of one of the keys, and Fig. 8 shows a section of it made at the dotted line marked A in Fig. 7. Fig. 9 shows the lower half of the key. Fig. 10 shows the upper and lower halves fitted together so as to form one key, and Fig. 11 shows a section of the same made at the dotted line marked A in Fig. 10. Figs. 12, 13, 14, 15, 16 relate to a modification of this part of my invention and are hereinafter more particularly referred to. Fig. 12 is a plan of this modified keyboard fitted to a harmonium with the keys in alinement. Fig. 13 is a front view of the name-rail with the index-plate and pointer and the keys at right angles to the name-board and in alinement. Fig. 14 is the modified transposing-bar. Fig. 15 shows one of the keys in vertical section, and Fig. 16 shows the same in plan.

Similar letters of reference indicate corresponding parts throughout the various figures.

Referring to the drawings, the keyboard constituting my invention is seen to be of any convenient compass, each key thereof being longitudinally divided into two sections *b b'*, preferably superposed one on another in such manner that the section *b'* is slidable on section *b* a determinate distance to and from the player and beyond the edge of the instrument. This is accomplished by the following arrangement of parts: The lower portions of the keys are fitted to the instrument in the ordinary manner and are each furnished on its upper face with slotted feathers *c*, whereon the corresponding upper portion is fitted and secured by pins inserted therein transversely, so that it is free to slide either backward or forward by operating a transposing-bar *d*, which is fitted across the action of the instrument at the back part of the keyboard. By this means that part of any key which is operated on by the fingers may be made to occupy either a front position or a rear position. Such bar has a series of teeth *e* formed on its lower edge, which engage with catches *f*, fitted to the rear ends of the upper sections. These teeth are spaced out so as to form a series of octaves of any given scale, the number of octaves being governed by the compass of the keyboard. The transposing-bar is fitted in sliding boxes *g*, that work over guide-plates *h*, mounted in the case of the instrument, and such bar is furnished with handles or pulls *i*, whereby it can be drawn out or set back or moved to and fro laterally, while a pointer *k* is fitted centrally thereon. Openings *m'* are made in the name-rail *m*, through which such handles and pointer project and wherein they work to and fro when the bar is operated, while an

index-plate *n* is mounted on such name-rail. A series of equidistant vertical lines corresponding to the twelve notes contained in an octave counted upward from middle C are marked on such index-plate thus "C^8, I, II, III, IV, V, VI, VII, VIII, IX, X, XI, C^9," (see Fig. 4,) and by operating the transposing-bar laterally to the right or left the pointer can be brought opposite any one of such vertical lines, and so indicate the position or pitch of the zero-note of the scale in which it is desired to play, while the serrated lower edge of the transposing-bar is by the same lateral movement brought opposite the various keys constituting the notes of such scale. The bar is then drawn forward by pulling its handles, thus causing the teeth to engage with the catches on the rear ends of the upper sections of such keys and impart a forward travel to those keys that are gripped, so that they project, as shown in Fig. 2, and present a keyboard consisting only of the scale-notes, while the keys remaining in the rear are the non-scale notes, which are only required when "accidentals" occur. By this improved construction of the keyboard the key or absolute pitch in which it is desired to perform any piece of music can be accurately and readily obtained, and when the performer has finished then by pushing in the handles and setting back the transposing-bar all the projecting keys can be again alined with the other keys, as shown in Fig. 1.

One very great advantage of the keyboard hereinbefore described is that when it is used in combination with music printed in a musical notation which shows only the pitch of the notes relatively to a zero or key note and not their absolute pitch it suffices to learn to play in one key only instead of in the twelve different keys now requisite. A further advantage which it also possesses is that music, even when printed in the ordinary staff notation, may be readily performed thereon in any desired key by any one who has learned to play in twelve different keys as soon as he has become accustomed to the keyboard hereinbefore described, in which the keys are all uniform in size, shape, color, and elevation, instead of as in the ordinary keyboard at present in use. Further, in order that such improved transposing-keyboard may be readily fitted into any existing instrument, such as a piano or harmonium, in lieu of the ordinary keyboard I have devised a modified construction and arrangement of the transposing-bar and likewise of the keys, of which I append a description. The object and advantage of this modification is to enable me to fit my keyboard into any existing instrument without the necessity of making any cutting into or alteration in the sides of the case of the instrument. It will be noticed in Figs. 1, 2, and 3 that the transposing-bar projects on each side through the sides of the case of the instrument. To avoid this, which might by some be deemed an inconvenience or disfigurement, it is preferable to use a transposing-bar whose length is about one octave shorter than that of the keyboard, so that when it is made to slide laterally, either to the right or left, it yet does not need to project on either side beyond the case of the instrument. The only defect which this arrangement introduces is that when the transposing-bar is pulled forward it does not protrude all the keys that may be required, but may leave a few at either or each end that must be pulled out (if needful) by the thumb and finger. Hence in order to fit this modification of my improved keyboard to any existing instrument with a minimum of time and labor I proceed thus: (*a*) Take off the present name-board of the instrument. (*b*) Remove all the present keys of the keyboard. (*c*) Next substitute my new set of keys. (*d*) Place the transposing-bar and new name-board, with its index-plate in proper position, on the top of the new keys, so that the teeth of the transposing-bar rest in the groove formed by the catches on the upper surface of the keys. (*e*) Put in the screws to hold the name-board and transposing-bar firmly in position. The whole operation may be executed within an hour. I now proceed to describe this modified construction. In the accompanying drawings, Fig. 12 is a plan and Fig. 13 a front view of the action of a harmonium fitted with such modified arrangement. Fig. 14 is a detail view, in front elevation, of the modified transposing-bar, and Figs. 15 and 16 are detail views, in side elevation and plan, of the modified construction of key. According to this modification the transposing-bar *d* is made about an octave shorter than the keyboard, so as to permit it to work to and fro laterally without coming in contact with the case of the instrument. Slots *d'* are formed therein to allow of such lateral travel and of its being mounted on the spindles of two pulls *i*, whereby it is either drawn out or set back, as desired. Such pulls work in fixed bearings *j*, fitted to the frame of the instrument, while their outer ends project through apertures in the name-rail *m* and are furnished with handles. Keyed or otherwise fitted to each pull are two guide-blocks *l*, which serve to keep the transposing-bar in position when operated laterally by a pull *k*, furnished with an index-finger *k'*, which pull is fitted centrally in the name-rail and connected to the transposing-bar by a brace k^2. When the bar is operated laterally by the pull *k*, the index-finger works over an index-plate *n*, mounted on the name-rail, and marked in the manner illustrated in Fig. 4, and indicates the position of the key-note or zero-note of the scale in which it is desired to play. In order to admit of the keys at either end of the keyboard being protruded, it is preferable to

construct the lower sections of the keys at each end of the keyboard somewhat shorter than the upper section, as shown in Fig. 15, so that when the transposing-bar is drawn forward any of the requisite keys at either end of the keyboard that remain stationary in the rear owing to the diminished length of the transposing-bar, can be readily drawn out by the performer with thumb and finger.

As regards the keys of the keyboard, one modification consists in recessing each key on both sides, so as to form a mid-rib b^2 thereon, as shown in plan at Fig. 12, (which mid-rib it is preferable may be colored differently from the other part of the upper surface of the key) and in detail at Figs. 15 and 16, in order to obviate striking the adjoining key on either side when playing the instrument. This modification of the upper surface of the upper section of each key may also be substituted in place of the upper surface represented in Figs. 7 and 10.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. A keyboard for musical instruments comprising keys the finger-operated portion of each of which is slidable a determinate distance to and from the player and beyond the edge of the instrument, substantially as described.

2. A keyboard for musical instruments comprising horizontally-movable keys in combination with a part mounted in the instrument, slidable in a horizontal plane both transversely to the keys and at right angles to that direction, and provided with means for engaging and moving forward and backward the finger-operated parts of a certain number or selection of keys, substantially as described.

3. A keyboard for musical instruments comprising keys provided with slotted lugs and a finger-operated portion mounted to slide on said lugs to and from the player relatively to the body of the instrument, substantially as described.

4. A keyboard for musical instruments comprising longitudinally-divided keys, one portion thereof being operatively connected to the actuating mechanism, and the other portion mounted to have a sliding movement on said first-named portion a determinate distance to and from the player and beyond the edge of the instrument and adapted to be operated by the fingers, substantially as described.

5. A keyboard for musical instruments comprising longitudinally-divided keys provided with internal engaging means between the contact-surfaces of the portions thereof, whereby one portion is slidable on the other a determinate distance to and from the player relatively to the body of the instrument, substantially as described.

6. A keyboard for musical instruments comprising longitudinally-divided keys, one portion thereof normally projecting beyond the other, and suitable engaging means whereby said projecting portion is slidable on the other to and from the player relatively to the body of the instrument, substantially as described.

7. The combination with a keyboard for musical instruments comprising longitudinally-divided keys, one portion thereof being slidably mounted on the other, of a transposing-bar constructed to engage with said slidable portions of a certain number or selection of keys and move the same to and from the player relatively to the body of the instrument, substantially as described.

8. The combination with a keyboard for musical instruments comprising keys provided with slotted lugs and a finger-operated portion mounted to slide on said lugs, of a transposing-bar constructed to engage with said finger-operated portions of a certain number or selection of keys and move the same to and from the player relatively to the body of the instrument, substantially as described.

9. A keyboard for musical instruments having horizontally-movable keys in combination with a transposing-bar constructed to engage with a certain number or selection of said keys and move the same to and from the player relatively to the body of the instrument, and a guide-bar for said transposing-bar mounted on the instrument, substantially as described.

10. A keyboard for musical instruments having horizontally-movable keys in combination with a transposing-bar constructed to engage with a certain number or selection of said keys and move the same to and from the player relatively to the body of the instrument, an index-plate mounted on the instrument marked so as to indicate the position or pitch of the zero-note of the scale in which it is desired to play, and a pointer for said index-plate mounted on the transposing-bar, substantially as described.

In witness whereof I have signed this specification in presence of two witnesses.

SAMUEL WHITFIELD THACKERAY.

Witnesses:
H. D. JAMESON,
A. NUTTING.