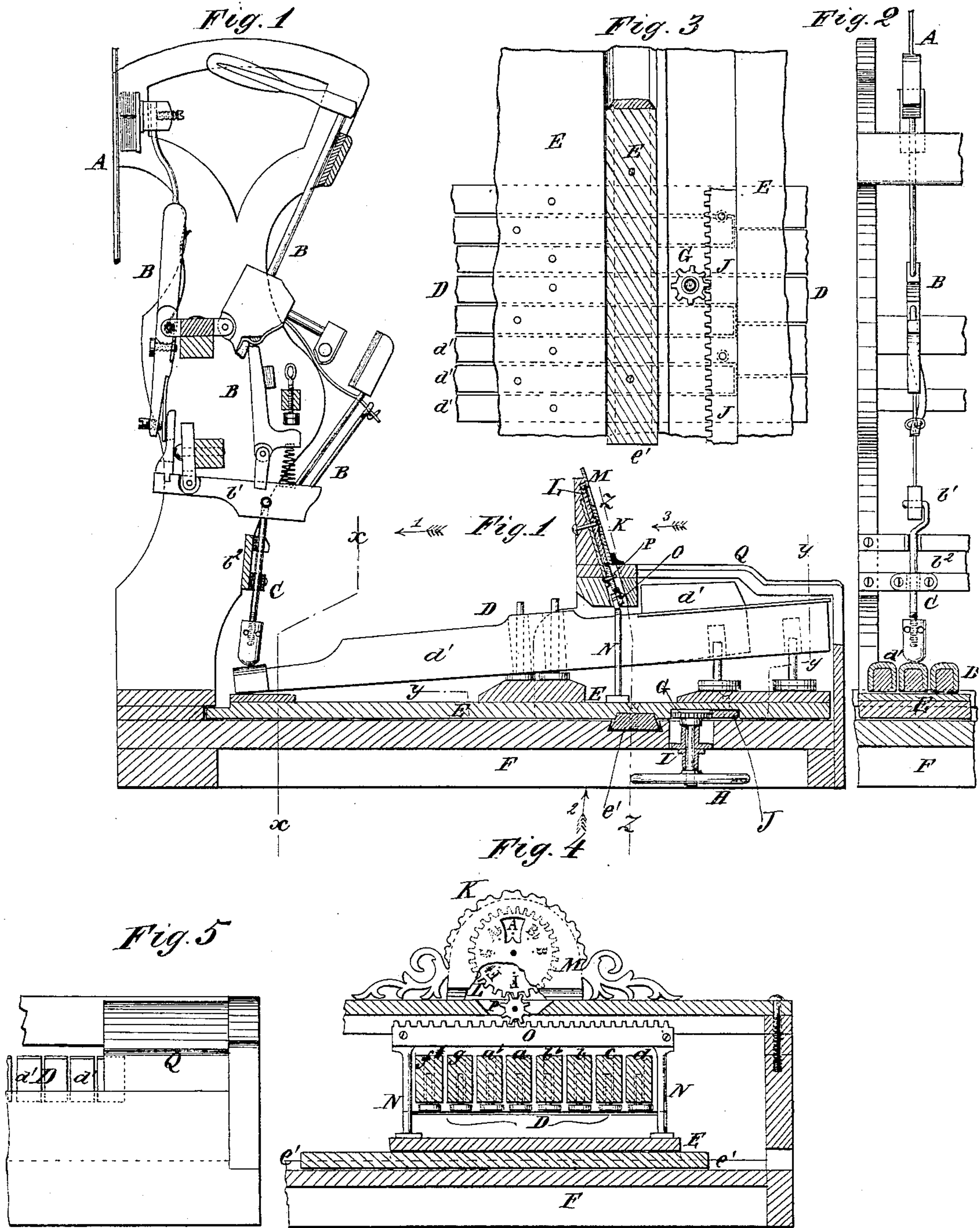


C. A. AGREN.
Transposing Key-Board.
No. 200,640. Patented Feb. 26, 1878.



Witnesses:
James H. Hunter
Ch. Wahlberg

Inventor:
C. Alfred Agren

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Fig. 6

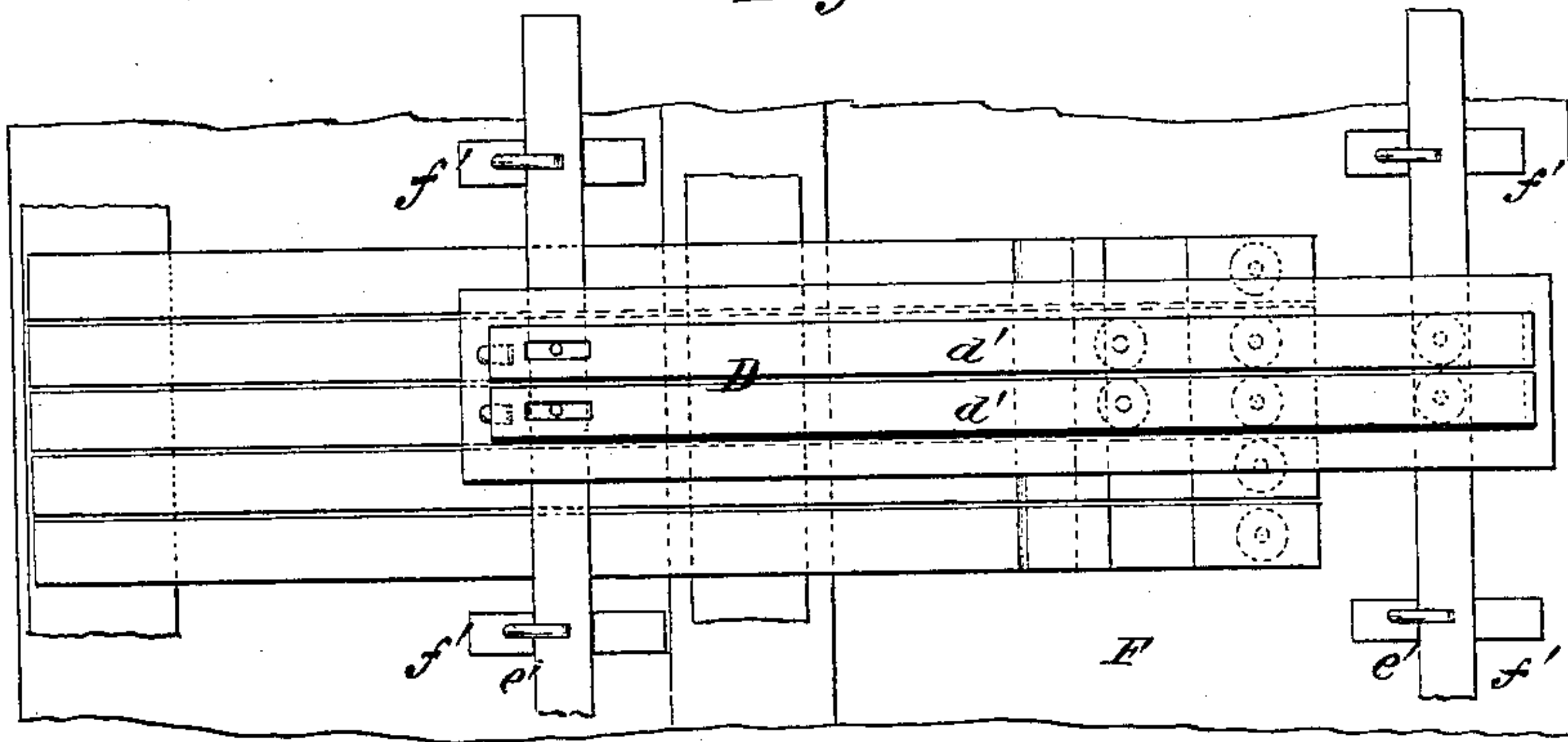
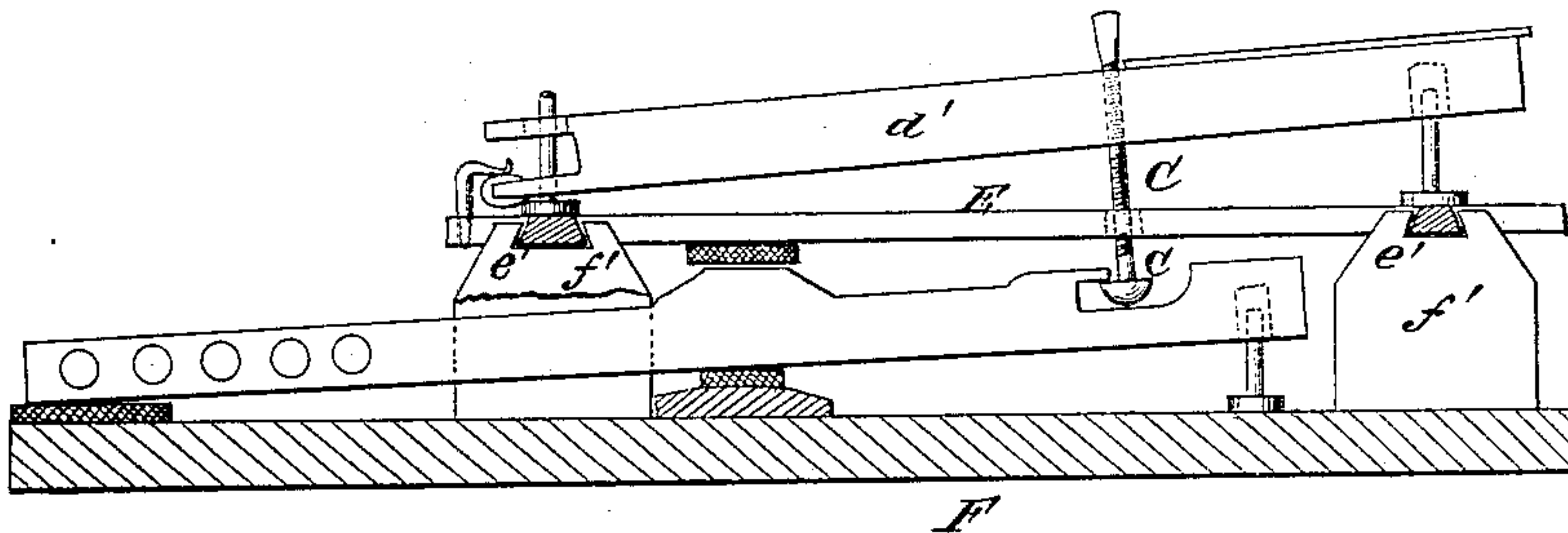


Fig. 7



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UNITED STATES PATENT OFFICE.

CARL A. AGREN, OF NEW YORK, N. Y.

IMPROVEMENT IN TRANSPOSING KEY-BOARDS.

Specification forming part of Letters Patent No. **200,640**, dated February 26, 1878; application filed February 28, 1876.

To all whom it may concern:

Be it known that I, CARL ALFRED AGREN, of the city of New York, in the county and State of New York, have invented certain Improvements in Key-Board Instruments, of which the following is a specification:

This invention has for its object to enable the performer on a key-board instrument to execute any piece of music, not only in the key in which the piece is set or written, but also in any other key, sharp or flat, higher or lower, while still playing on the same keys of the key-board as those indicated by the notes on the copy before him, exactly as though he were playing it in the original key.

To produce this effect the invention consists in the mechanism to be hereinafter described, whereby the position of the entire key-board immediately played upon may be readily changed or transposed with relation to the strings, reeds, or pipes producing the sounds of the various notes, and the scale or key into which the whole tune or composition is thus transferred or transposed is automatically indicated by an index on a dial-plate in view of the performer.

In the accompanying drawings, on Sheet 1, Figure 1 represents my invention applied to an upright piano, showing in vertical section the key-board and action complete for sounding one note. Fig. 2 is a front view of a portion of the action and a section of the key-board, taken through the line *xx* of Fig. 1, seen in the direction of arrow 1. Fig. 3 is a plan view of a portion of the key-board frame, sectioned through the line *yy* of Fig. 1, and seen from the under side, or in the direction indicated by the arrow 2. Fig. 4 is a sectional elevation of the key-board with frame, casing, and key-indicator, taken through the line *zz* of Fig. 1, and seen in the direction of the arrow 3. Fig. 5 is a front view of a portion of the key-board and of the casing covering the end of the same. On Sheet 2, Fig. 6 represents a plan view, and Fig. 7 a vertical section, of my transposing key-board as applied to a square piano, or as it may be attached to any key-board instrument without removing the old key-board.

Similar letters of reference indicate like parts.

A is the string (in a melodeon a reed, in an organ a pipe) for sounding one note. B is the action, (in a melodeon or organ simply the air-valve,) by operating which the note is sounded. C is the button and rod (in melodeons and organs the valve-rod) connecting the key with the action.

In pianos the buttons C may be attached to the fly-butt *b*¹ of the action, as shown in Figs. 1 and 2, and reaching down to and barely touching the keys, the button-rods working in a rail, *b*², on the action-frame; or the button-rods may be fastened in the keys, and the buttons C reaching up to and barely touching the fly-butts *b*¹ of the action, in the ordinary manner. It is immaterial whether they be attached to the action or to the keys, so long as they allow of a free and unimpeded motion of the key-board for changing the juxtaposition of the keys from one to another of the notes, whether the latter be represented by strings, reeds, or pipes.

D is the key-board, and *d'* each separate key thereof. The ordinary balance-rail and guide-pins, or other supports for the keys *d'*, are attached to a movable or sliding frame or board, E, which, for the sake of conciseness, I will consider a part of the key-board D. This frame E slides on ways *e'*, directly on the stationary bottom plate or frame F of the instrument, as in Sheet 1, or on brackets *f'*, attached to it, as in Sheet 2, and is moved by a pinion, G, and hand-wheel H, secured on the same shaft, which has its bearing in a bracket, I, fastened to the frame F. The pinion G gears into a rack, J, bolted to the sliding frame E, so that by turning the hand-wheel H the whole key-board D is moved to the right or left, as desired, changing thereby the relative position between each key *d'* and each note A with its action B. K is the indicator for denoting into which key a tune, by the above movement of the key-board, has been transposed. This indicator consists of a toothed wheel, L, on which are stamped the names or symbols of the keys, and which is pivoted to a plate or frame, M, placed on the casing above the key-board in view of the player. The symbol of the key in which the composition is to be played is seen through a

perforation in the plate M when the corresponding key of the key-board is vertically below the said symbol.

The motion of the key-board is transmitted to the indicator in the following manner: To standards N, secured to the sliding frame E, is bolted a rack, O, which, moving with the frame E, communicates motion to the index-wheel L by means of an intermediate gear, P. This wheel P is interposed merely to reverse the motion of the wheel L, so that the index will turn up in the same direction as the hand-wheel H is turned.

The wheel P may be omitted and yet the right names of the keys turned up, by stamping them on the wheel L reversely to what is shown in the drawing; but as, in that case, the wheel L would move in an opposite direction to that of the hand-wheel H, and thereby perplex the operator, I prefer to use it as shown. Q is a casing at each end of the key-board, to cover up the space left vacant, to allow of the movement of one-half of the width of an octave.

A single illustration will suffice to show the utility of this invention. Suppose that a person is to sing to a piece of music played, and in which the highest note lies one and one-half notes above the reach of his voice. To suit his voice it is only necessary to turn the hand-wheel H until the index has moved from

A to F-sharp. (See Fig. 4, where I have lettered the keys corresponding to the index.) By touching the key *a* according to the copy before him, the performer will sound the string or note F-sharp, and so on for every note he plays, thus transposing the whole piece of music to another scale one and one-half notes lower than that to which it was set or written.

A spring-catch may be inserted in the plate M, to engage with notches in the wheel L, to prevent the latter from accidentally being stopped in a position between two indicated symbols.

Having thus described my invention, I do not claim, broadly, the idea of transposing by means of a sliding motion of the key-board; nor do I claim the idea of operating the index by the sliding motion of the key-board.

What I claim as new, and desire to secure by Letters Patent, is—

1. The rack J, pinion G, hand-wheel H, the sliding key-board D E, the rack-frame N O, and the index K, all constructed and operating as and for the purpose specified.

2. The combination of the rack-frame N O with the sliding key-board D E and the index K, for the purpose specified.

C. ALFRED AGREN.

Witnesses:

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