(No Model.) 3 Sheets—Sheet 1.

M. PHILIPPS.

TRANSPOSING KEY BOARD FOR MUSICAL INSTRUMENTS.

No. 354,733. Patented Dec. 21, 1886.

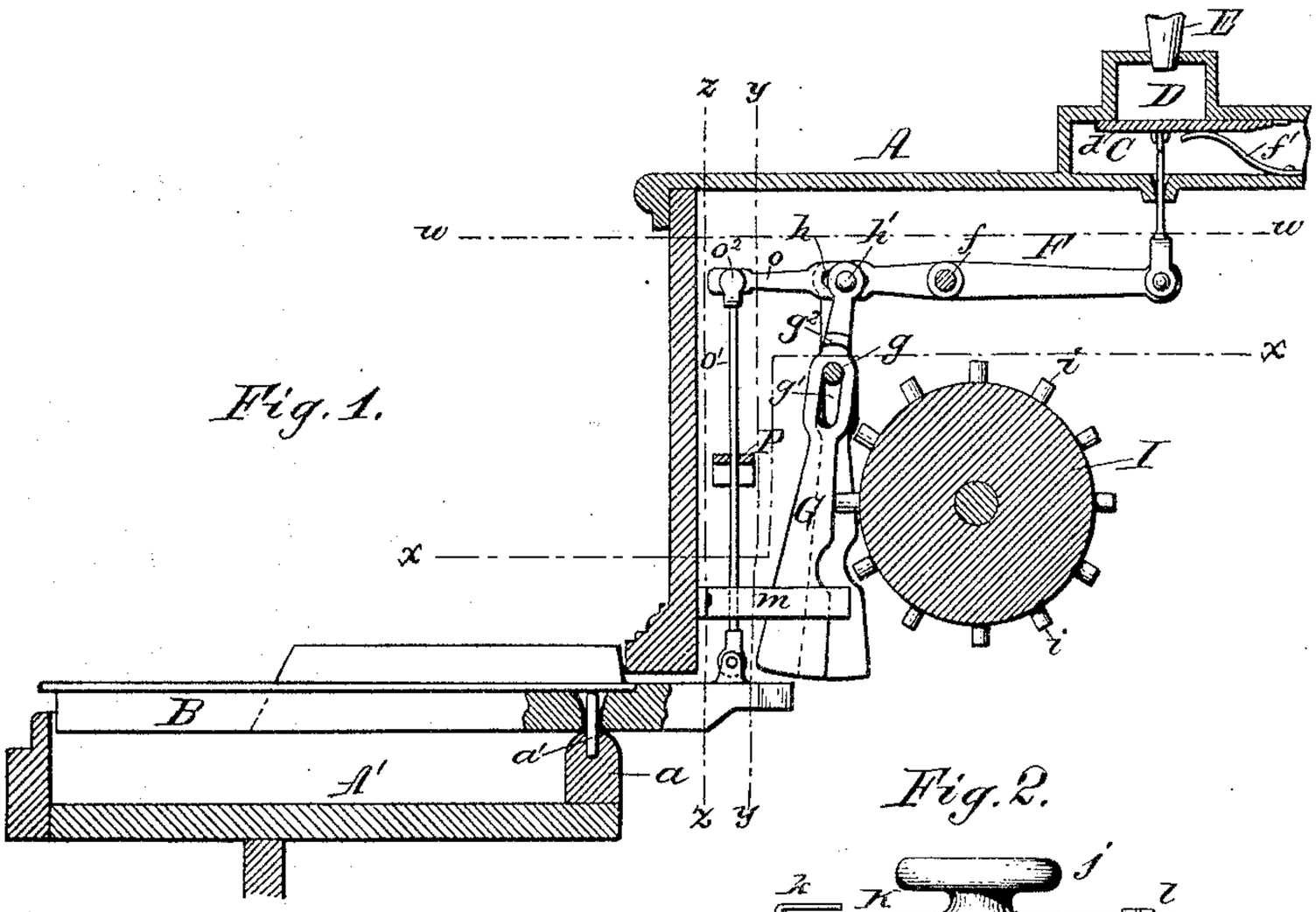
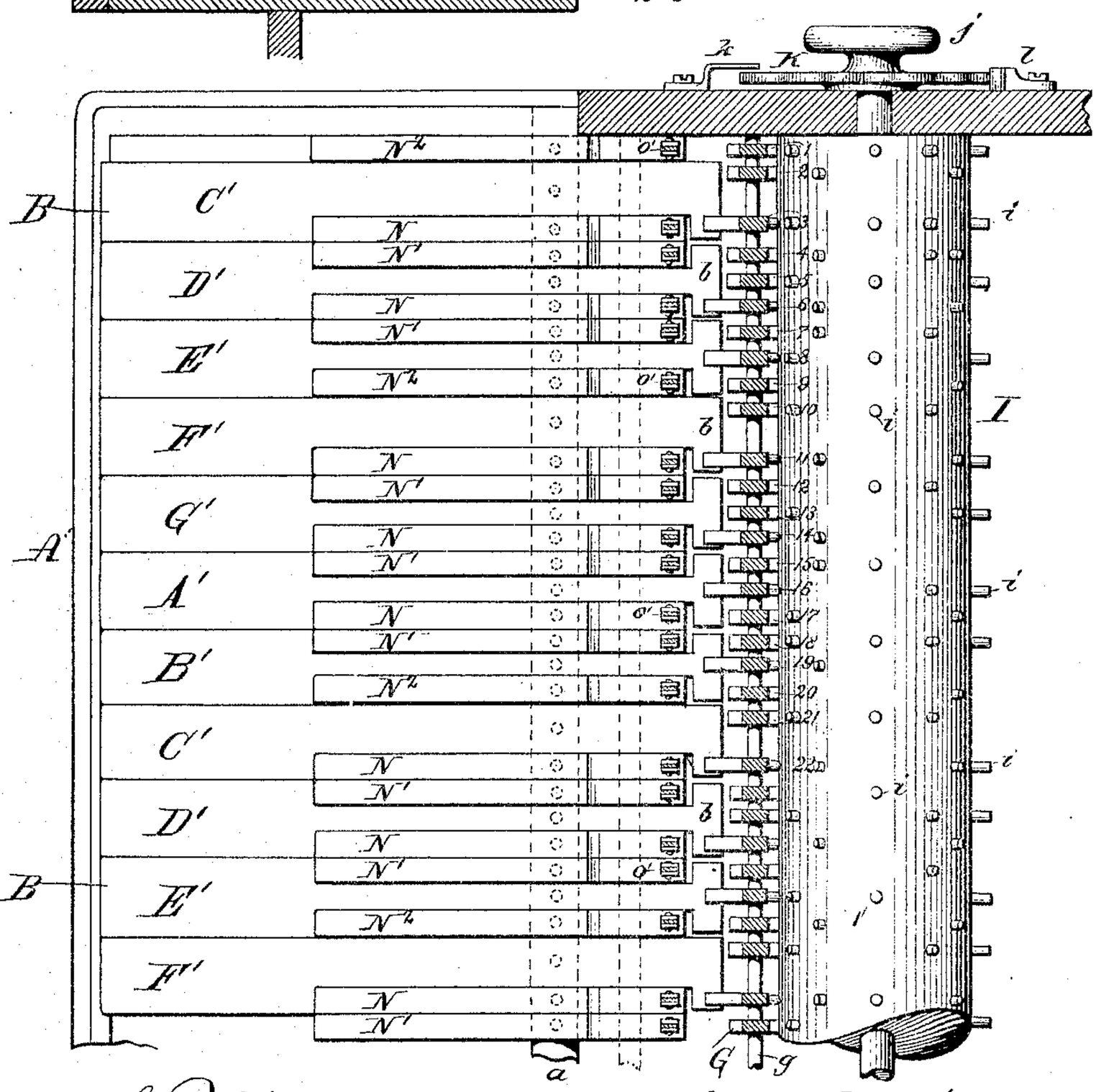


Fig. 1.

Fig. 2.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

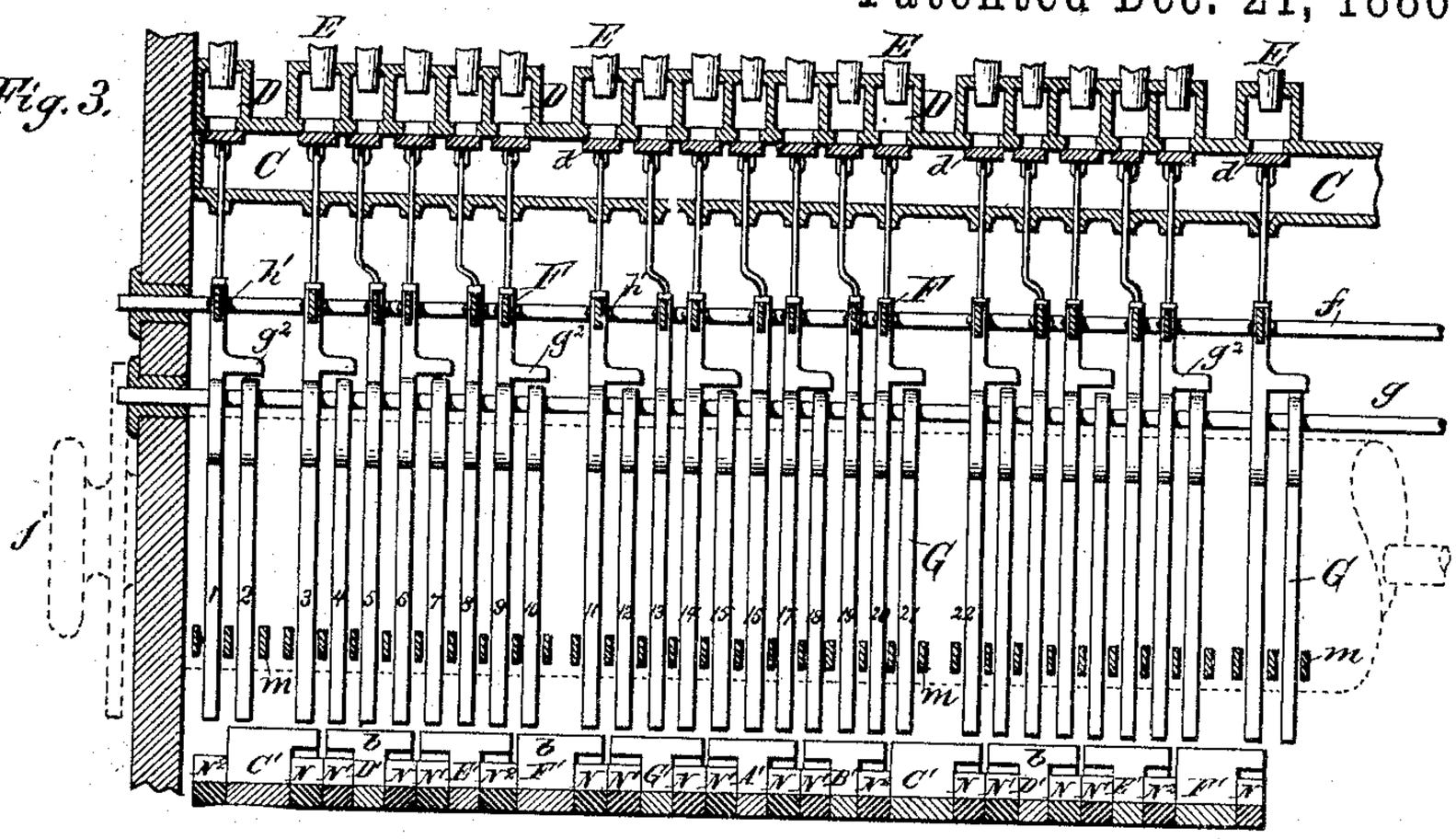

Fig. 4.

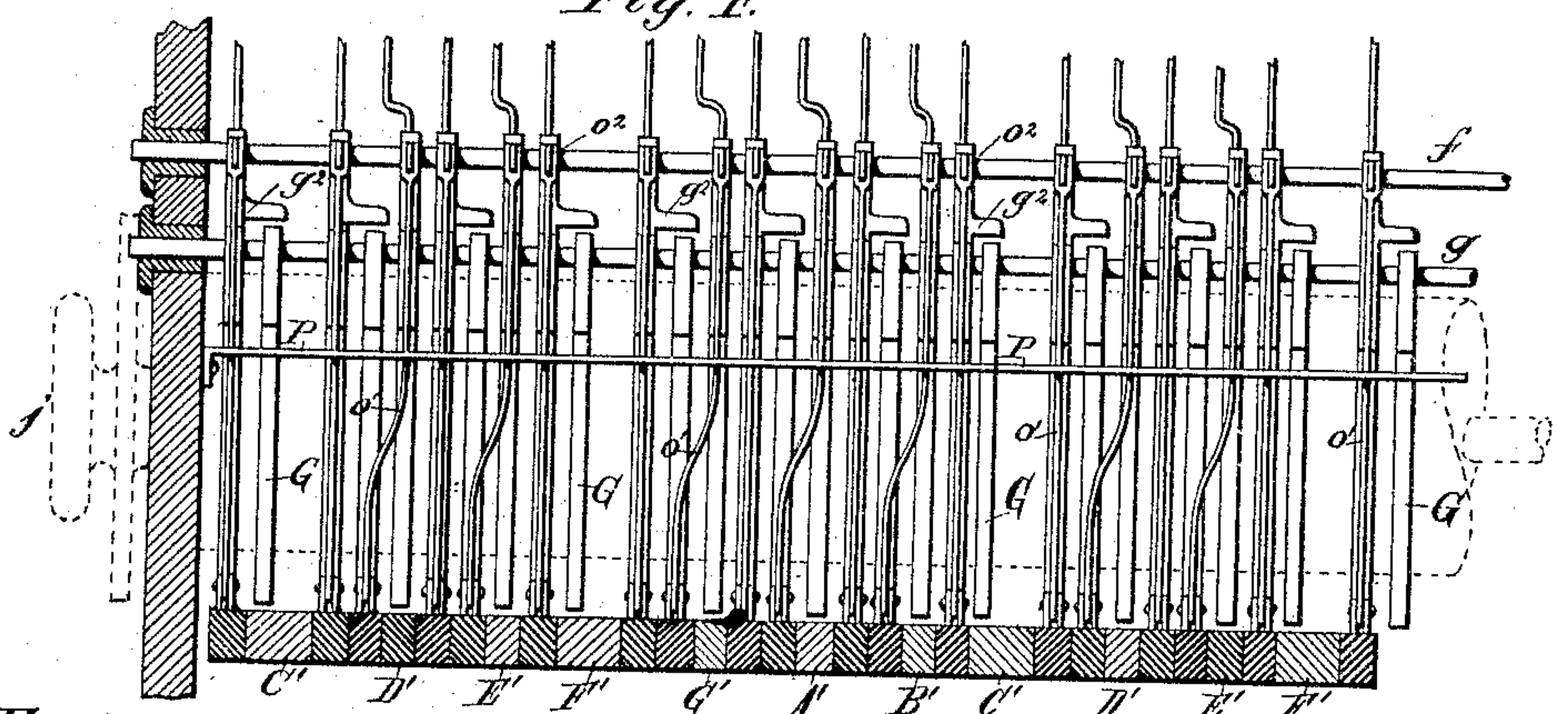

Fig. 5.

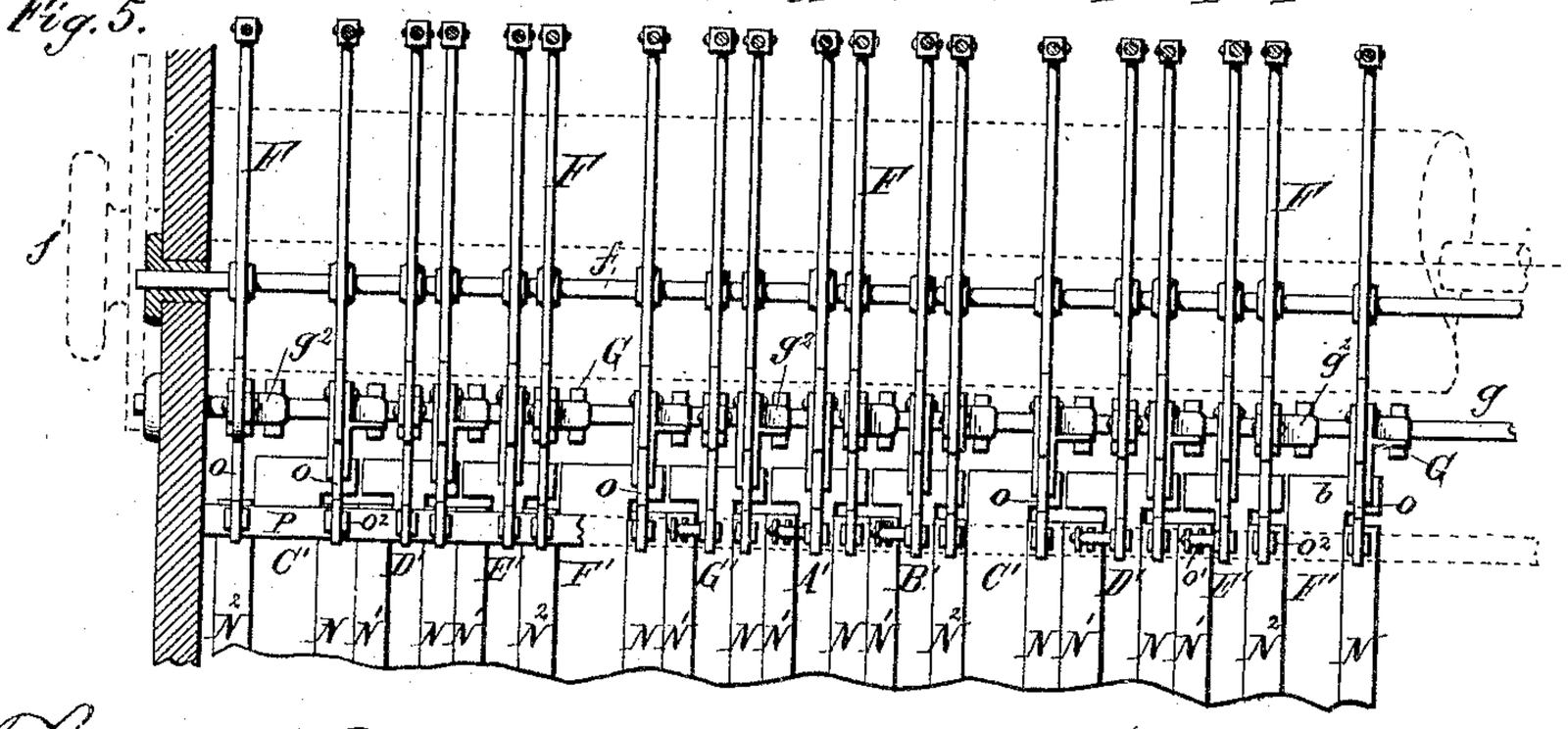

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Fig. 6.

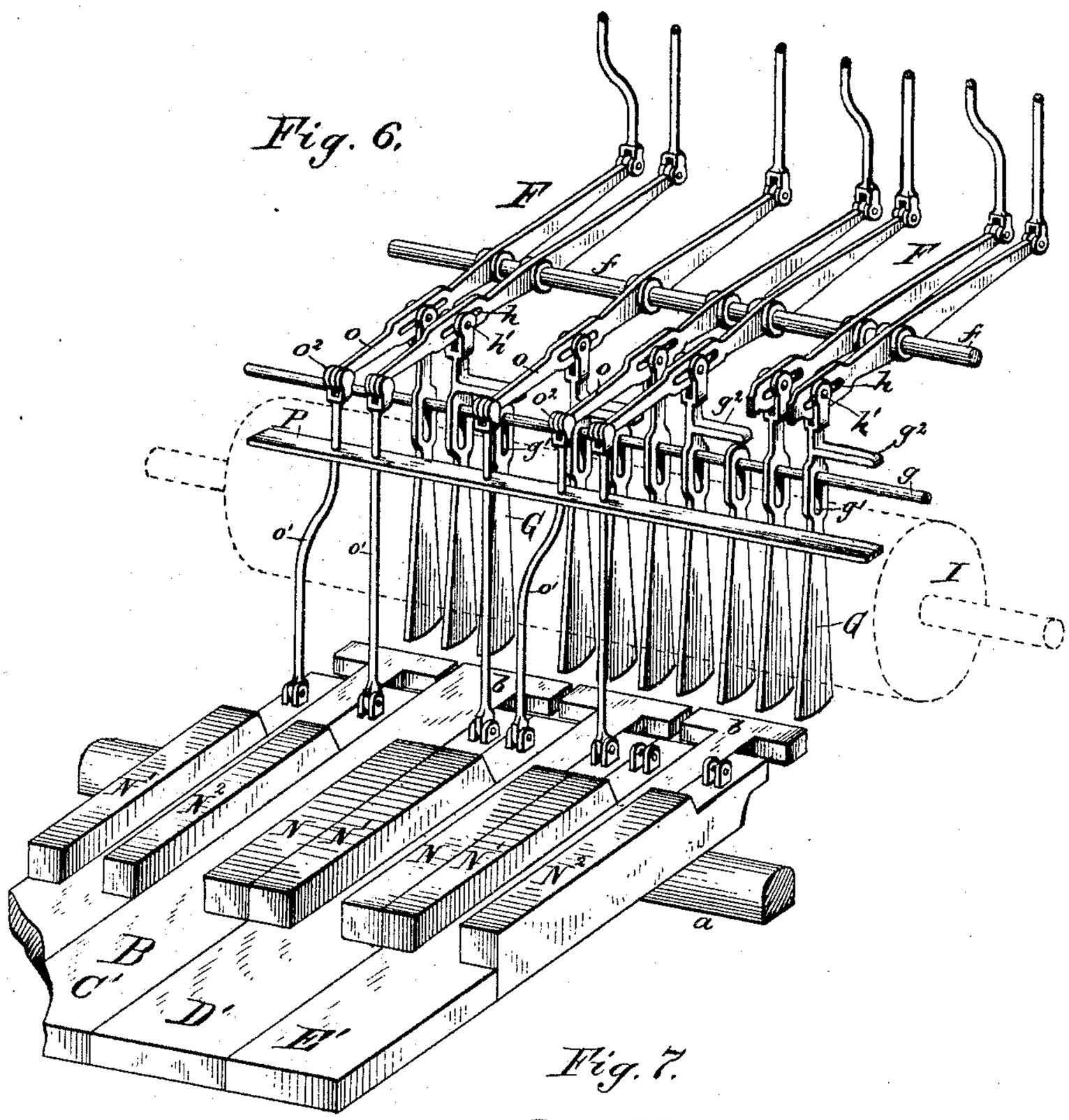
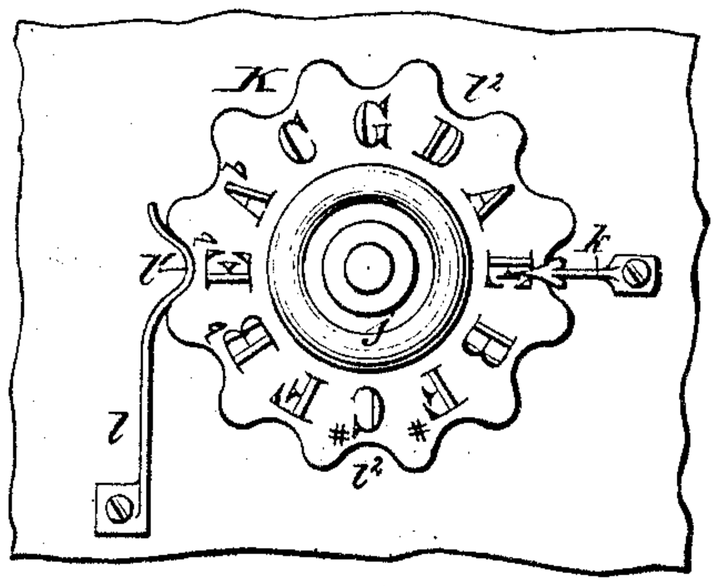


Fig. 7.



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UNITED STATES PATENT OFFICE.

MARTIN PHILIPPS, OF STRYKERSVILLE, NEW YORK.

TRANSPOSING KEY-BOARD FOR MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 354,733, dated December 21, 1886.

Application filed June 8, 1886. Serial No. 204,519. (No model.)

To all whom it may concern:

Be it known that I, MARTIN PHILIPPS, of Strykersville, in the county of Wyoming and State of New York, have invented new and useful Improvements in Organs, &c., of which the following is a specification.

This invention relates to an improvement in a key-board for organs and other similar instruments in which the keys are disconnected from the sound-producing parts, and the key-board is provided with a shifting mechanism, whereby the keys can be placed in communication with different sound-producing parts at desire in such manner that different notes can be sounded by the same key.

The object of my invention is to provide simple and efficient means whereby the keys can be connected with the sound-producing parts; and the invention consists of the improvement, which will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, consisting of three sheets, Figure 1 represents a vertical cross-section of a pipe-organ provided with my improved key-board. Fig. 2 is a fragmentary horizontal section of the same in line *x x*, Fig. 1. Fig. 3 is a vertical longitudinal section in line *y y*, Fig. 1. Fig. 4 is a similar view in line *z z*, Fig. 1. Fig. 5 is a horizontal section in line *w w*, Fig. 1. Fig. 6 is a perspective view of a portion of the improved key-board. Fig. 7 is a face view of the indicator applied to the shifting-roller.

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

A represents the top frame or casing of an organ, and A′ the key-board frame, in which the keys are arranged.

B represents the white or main keys, which are pivoted upon a cross-bar, *a*, of the key-board frame by means of vertical pins *a′*, and which are capable of a rocking movement in a well-known manner.

C represents the main wind-trunk, D the wind-chests communicating with the same by valves *d*, and E the pipes inserted into the wind-chests D.

F represents the actuating-levers of the valves *d*, which are mounted upon a horizontal rod, *f*, secured in the side frames of the organ, and *f′* are the springs whereby the valves *d* are held in a closed position.

G represents depending arms or pendants, which are pivoted near their upper ends to a horizontal rod, *g*, and connected with their upper ends to the outer ends of the actuating-levers F. The outer arms of the actuating-levers F are provided with longitudinal slots *h*, in which engage the pins or bolts *h′*, which connect the upper ends of the pendants to the levers F, and whereby the pendants are permitted to swing on the horizontal rod *g* as a fulcrum. The openings *g′*, whereby the pendants G are hung upon the horizontal rod *g*, are elongated lengthwise of the pendants, so as to allow the pendants to move vertically in operating the levers F. The pendants G are so arranged that their lower ends will stand opposite the inner ends of the keys B and clear the same when the pendants are in a normal or perpendicular position, and so that when their lower ends are moved forwardly out of this position they will project over the ends of the keys. By depressing one of the keys B its inner end strikes the end of the pendant which is projected over the key and raises the pendant, which latter in turn actuates the lever F, thereby opening the valve *d* and sounding the note.

I represents a horizontal roller or cylinder arranged in the casing A in rear of the pendants G, and journaled in suitable bearings formed in the sides of the casing A. The roller I is provided on its face with twelve series of pins or projections, *i*, corresponding with the twelve different scales, and which bear against the rear sides of the pendants and move the same forwardly, so as to project the same over the inner ends of the keys. Each of the white keys is provided with three pendants, G, excepting the keys marked C′ and F′, representing the first and fourth steps of the scale, which are provided with but two pendants. The pendants G of each of said keys having three pendants are connected, respectively, with the natural tone of the key, the half-tone above it, or its sharp, and the half-tone below it, or its flat, so that by projecting any one of said pendants over the end of the key the pipe or reed connected with said pendant can be sounded, and either of said three sounds can be produced by the same key. The keys B are constructed at their inner ends with heads or enlargements *b*, to receive said pendants.

As there is only a half step or interval between the keys E′ and F′ and B′ and C′, the keys F′ and C′ require only two pendants, G, one being connected with the natural tone represented by the key and the other with the half-tone above it, or its sharp. The flat tones or half-steps below the keys F′ and C′ are equivalent to B natural and E natural, and said keys therefore do not require an extra pendant, as these sounds are produced by the keys next below them.

The roller I extends across the entire series of pendants, and is provided with twelve series of pins or projections, each series for one scale, which are arranged in such positions on the roller that all the pendants which represent the tones constituting a given scale will be projected over their respective keys simultaneously. By turning the roller I on its journals the pendants representing the tones of any required scale are projected. In this manner all the scales can be played entirely with the white keys in the same manner as the scale of C is played on an ordinary organ or piano.

The sounds of D, E, G, A, and B of the scale of C are each producable only by a single key, marked, respectively, D′, E′, G′, A′, and B′ in Fig. 2. The pendants G producing these sounds are directly connected with the operating-levers F of the sound-producing parts, as represented in Fig. 3. These pendants are marked, respectively, 5, 8, 13, 16, and 19 in Figs. 2 and 3. The intermediate sounds are producable by one of two adjoining keys. For instance, the sound of C-sharp can be produced by shifting the pendant 3 over the key C′, as represented in Figs. 2 and 3, or by shifting the pendant 4 over the adjoining key D′. In the same manner the same sound can be produced by either of the adjoining keys D′ and E′ and their pendants 6 and 7, and the same sound can be produced by either of the adjoining keys E′ F′ and their pendants 9 and 10.

When the same sound is produced by two adjoining keys and two adjoining pendants, one of the pendants is directly connected to the operating-lever F of the sound-producing part—as, for instance, the pendants 3, 6, 9, &c., in Fig. 3—and the other pendants, by which the same sounds are produced, are hung loosely upon the rod *g* below noses g^2, formed on the first-named pendants—as, for instance, the pendants 4, 7, 10, &c., in Fig. 3—so that upon raising either of these loose pendants by its key the pendant will strike against the nose g^2 of the adjoining pendant and thereby move the actuating-lever F.

The roller I is provided at one end with a knob or button, *j*, whereby it can be turned.

K represents an indicator-disk secured to the knob or button *j* and bearing the characters or signs of the different scales, each of the characters on the indicator K being arranged opposite or in line with the row of pins adapted to project the pendants of the scale designated by said character.

k represents a finger or pointer secured to the side of the casing A and projecting with its end over the edge of the disk K. The pointer *k* is arranged in line with the horizontal position which the pins on the roller must assume in order to move the pendants G forward, so that by bringing one of the characters under the pointer *k* the row of pins standing in line with said character will be pressed against the corresponding pendants.

l represents a spring which is secured to the side of the casing A and provided at its upper or free end with a bent portion or projection, *l′*, which engages in one of a series of notches or depressions, l^2, formed in the periphery of the disk K, whereby the roller I is held in any desired position.

The pendants G are guided and held against lateral displacement by short horizontal bars *m*, arranged between the pendants and secured to the inner side of the casing A.

The arrangement of the key-board above described enables a performer to play in any desired scale without the use of the black keys by simply turning the roller I, so as to present the proper series of pins to the pendants.

In order to enable the performer to play an accidental or intermediate tone which does not constitute a tone or step of the scale for which the roller is adjusted—as, for instance, when the roller is adjusted to the scale of C and the tone of C-sharp should occur in the piece of music—black keys N N′ N² are provided for these sounds. For this purpose each white key, between which and the next following key there is a whole step, is provided with a black auxiliary key, N, connected with the pipe or reed constituting the sharp of said key.

After the natural tone of the key has been changed to the sharp or flat tone of the key, to form one of the steps of another scale, it sometimes happens that the natural tone of the key is required. For this purpose each white key, between which and the key immediately below it there is a whole step, is provided with a black auxiliary key, N′, connected with the pipe or reed constituting the natural tone of the key.

To enable the natural tones of the keys F′ and C′ to be played after these keys have been changed to their sharp tones, they are each provided with an auxiliary black key, N², connected with the natural tones of these keys.

The black keys N N′ N² are connected to the actuating-levers F of the sound-producing parts by means of extensions *o*, formed on said levers, and connecting-rods *o′*, extending from said levers to the inner ends of the black keys, as represented in Fig. 1. The connecting-rods *o′* are pivoted to the rear ends of the auxiliary keys, and are guided in openings formed in a cross-piece, P, while their upper ends are bifurcated, as represented at o^2, and arranged below the extensions *o* of the actuating-levers F, so that upon depressing the auxiliary key the connecting-rod and front end of the actuating-lever are raised. This construction per-

mits the actuating-lever to be raised by the main keys B without moving the auxiliary keys N N′ N².

I claim as my invention—

1. The combination, with the keys B and actuating-levers F, of the movable arms G and the series of shifting pins *i*, whereby the arms G are moved in and out of engagement with the keys, substantially as set forth.

2. The combination, with the keys B and the actuating-levers F of the sound-producing parts, of pendent arms G, and a roller, I, provided with projecting pins *i*, substantially as set forth.

3. The combination, with the keys B and the actuating-levers F, provided with slots *h*, of the supporting-bar *g*, pendent arms G, provided with slots *g′*, by which the arms are supported upon the bar *g*, and a roller, I, provided with pins *i*, substantially as set forth.

4. The combination, with the keys B and the actuating-levers F, of the pendent arms G, hung upon a bar, *g*, fixed guides *m*, arranged between the arms G, and a roller, I, provided with projections *i*, substantially as set forth.

5. The combination, with the keys B and arms G, of the shifting-roller I, provided with an indicator, K, substantially as set forth.

6. The combination, with the keys B and arms G, of the shifting-roller I, and a stop, whereby the roller is held in position after it has been adjusted, substantially as set forth.

7. The combination, with an actuating-lever, F, and two adjacent keys, B B, of two pendent arms, G G, one of which is permanently connected with the lever F and provided with a projection, g^2, and the other of which is arranged underneath said projection, substantially as set forth.

8. The combination, with the actuating-levers F of the sound-producing parts, of main keys B, and a shifting actuating mechanism, whereby said keys can be connected with or disconnected from the actuating-levers F, and auxiliary keys N N′ N², which are directly connected with the actuating-levers F, substantially as set forth.

9. The combination, with the actuating-levers F of the sound-producing parts, of main keys B, pendent arms G, and a roller, I, whereby the keys B are connected with or disconnected from the actuating-levers F, and auxiliary keys N N′ N², provided with connecting-rods *o′*, engaging with the actuating-levers F, substantially as set forth.

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