

(No Model.)

2 Sheets—Sheet 1.

A. HOLMSTROM.
TRANSPOSING KEY BOARD INSTRUMENT.

No. 446,289.

Patented Feb. 10, 1891.

Fig. 1.

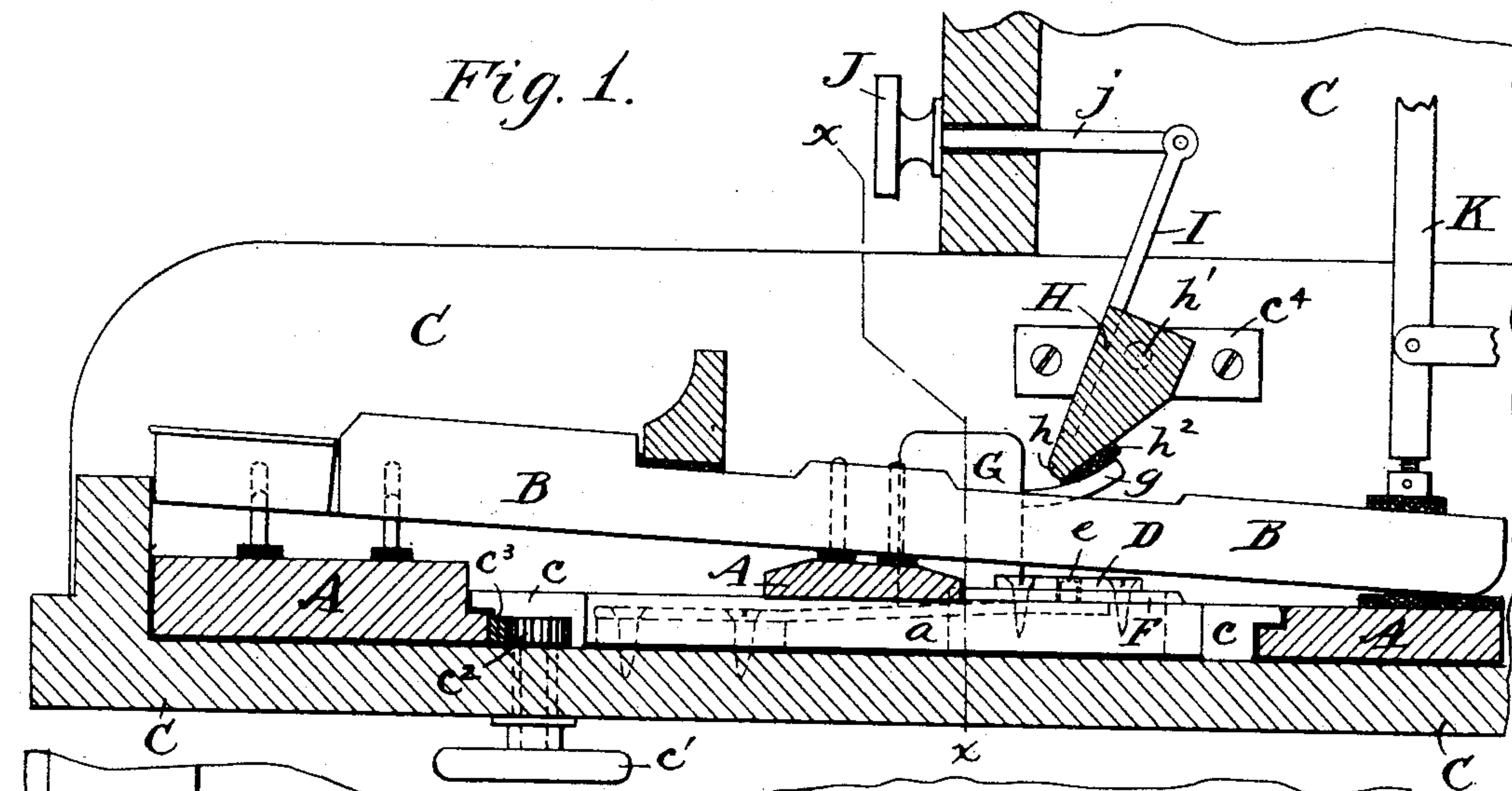


Fig. 2.

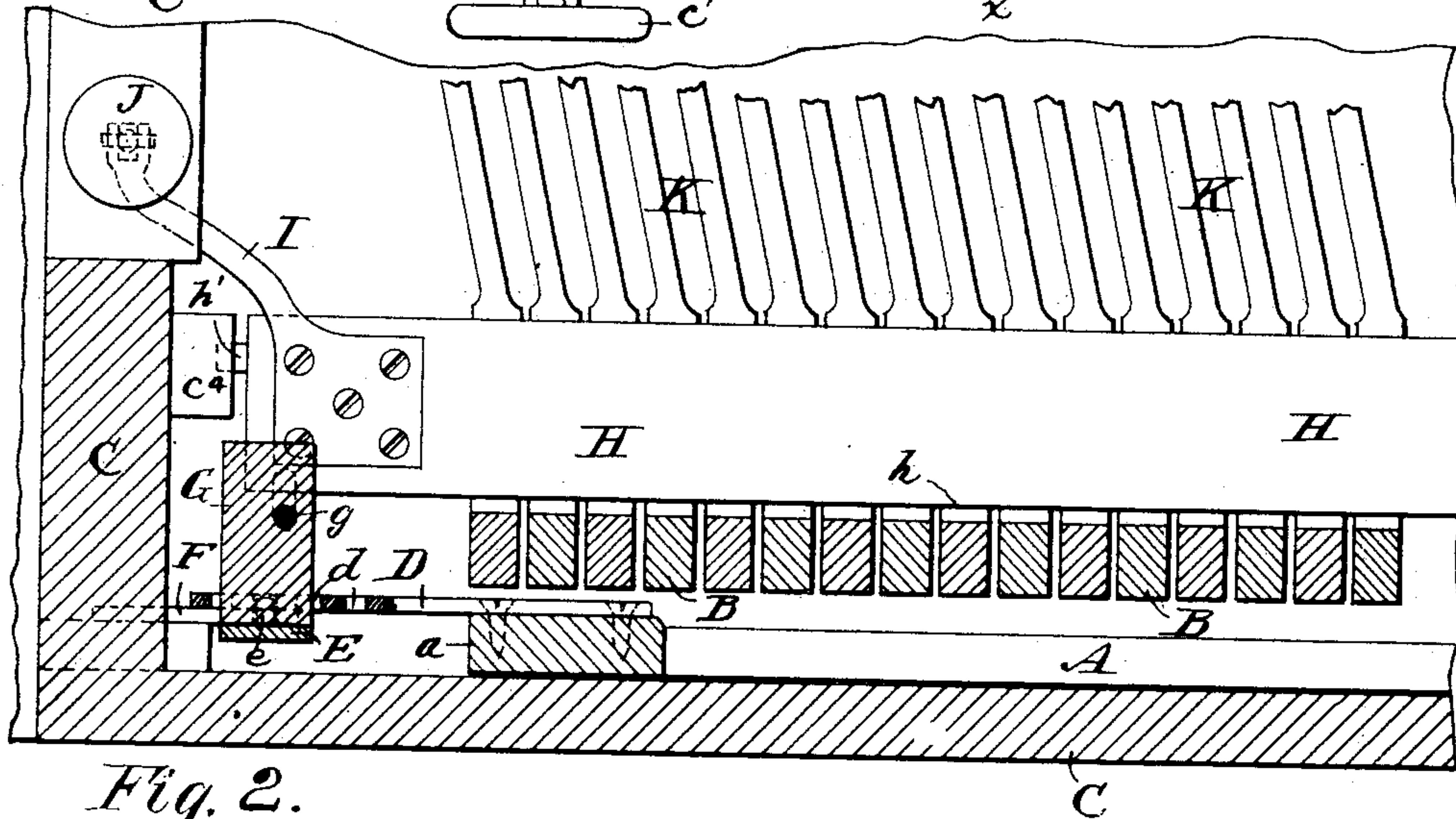
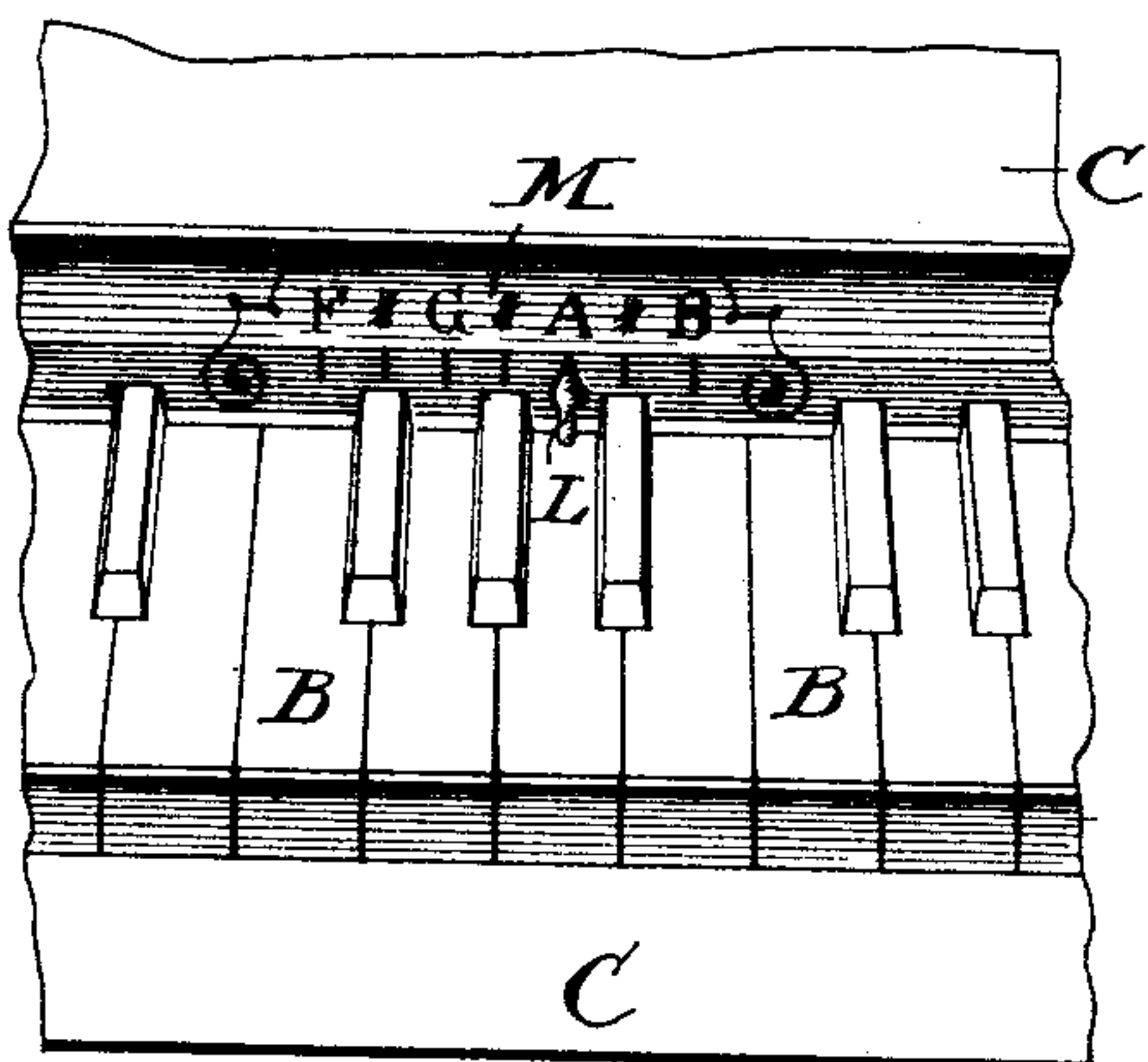


Fig. 3.



WITNESSES:

J. H. Thebrath.
C. Sedgwick

INVENTOR:

A. Holmstrom
BY
Munn & Co
ATTORNEYS

UNITED STATES PATENT OFFICE.

ANDERS HOLMSTROM, OF NEW YORK, N. Y.

TRANSPOSING KEY-BOARD INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 446,289, dated February 10, 1891.

Application filed October 15, 1890. Serial No. 368,168. (No model.)

To all whom it may concern:

Be it known that I, ANDERS HOLMSTROM, of the city, county, and State of New York, have invented new and useful Improvements in
5 Transposing Key-Board Instruments, of which the following is a full, clear, and exact description.

My invention relates to musical instruments—such as the piano and organ—fitted
10 with movable transposing key-boards, allowing change of pitch of tone for obtaining different musical effects by fingering the same keys.

The invention has for its object to provide
15 simple, efficient, and inexpensive attachments to instruments of this class, allowing the key-board to be latched when adjusted to any desired position, and whereby also the keys will be held against accidental depression at the
20 front and lifting at the rear portions prior to shifting the key-board, thereby preventing collision of the keys and action-stems to avoid damage to the parts.

The invention will first be described, and
25 then will be particularly pointed out in claims hereinafter set forth.

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 vertical section through the frame and the key-board and adjacent parts of an upright piano to which my improvements have been applied. Fig. 2 is a front vertical
35 sectional view of the left-hand end or portion of the instrument, showing the parts illustrated in Fig. 1. Fig. 3 is a detail front perspective view of the central parts of the key-board and instrument-case, illustrating a simple index for indicating the adjustment of
40 the transposing key-board. Fig. 4 is a detail vertical sectional view illustrating the normal condition of the parts of my invention or with the key-board locked against lateral
45 movement and the keys free to allow playing of the instrument. Fig. 5 is a view of like parts, showing the key-board unlocked and the keys retained to prevent their depression while the key-board is being shifted in the
50 frame. Fig. 6 is a detail plan view with the instrument-casing partly in horizontal sec-

tion, and Fig. 7 is a transverse vertical section showing a modification of one part of my invention.

The key-board A, on which the instrument-
55 keys B are mounted in any ordinary or approved manner, is fitted to slide transversely in suitable ways or guides *c c*, fitted in the frame or case C of the instrument, and may be shifted either to the right or left hand by
60 a hand-wheel *c'*, the shaft of which has a pinion *c²* meshing with a rack *c³* on the key-board. Any other approved mechanism for thus shifting the key-board to transpose the
65 musical effect of depressing the keys may be adopted, as such mechanism forms no part of my invention.

I provide a latch or lock to hold the key-board A at any position to which it may be
70 laterally adjusted, said latch or lock consisting, preferably, of a metal plate or bar D, fixed to the key-board and projecting laterally from its left-hand end cross piece or bar *a* and
75 provided with a series of holes *d*, adapted to be engaged by a pin *e*, which is preferably fixed to an elastic or spring metal plate E,
80 fastened at one end to the frame C or a block or cleat thereon. I prefer, also, to employ an auxiliary metal plate F, which is fixed at one
85 end to the frame or to a block thereon and projects between the latch-plates D E and has a hole *f*, through which the latch-pin *e*
90 passes as a guide to it in entering one of the holes *d* of the key-board plate D. This auxiliary plate F is not essential to the latch
95 mechanism; but it serves both as a steadiment and re-enforce to the latch-pin and an additional safeguard against lateral movement of the latched key-board, and therefore is preferred in practice.

The above-described key-board latch may
be operated by any suitably-arranged push
pin or device which will depress the elastic
plate E and withdraw its pin *e* from the
aperture *d* of the key-board plate D to re-
100 lease the board and allow it to be laterally shifted. I prefer, however, to combine the latch-operating device with a retainer which prevents depression of the exposed outer ends of the instrument-keys, and consequently
prevents raising of the inner ends of the
keys to avoid or prevent damage to the ham-

mer or reed valve-operating stems or action by the keys as the key-board is shifted bodily to obtain different musical effects. In carrying out this part of my invention in the preferred manner I fasten to the spring latch-plate E a block G, from which projects rearward a fixed stem *g*, which is depressed by the lower edge or part *h* of a strip or plate H, which extends clear across the instrument from end to end above the keys B and is journaled by pins or trunnions *h'* to opposite ends of the instrument case or frame or to blocks *c'* thereon. A piece of felt *h''* on the retainer H assures noiseless action of it on the block-stem *g* for unlatching the key-board. A rod I, fixed to the retainer and preferably at its extreme left-hand end, is coupled at its upper free end to the stem *j* of a key or pull-button J, which is fitted to slide in the instrument-case C, and when drawn outward turns the retainer and carries its lower edge *h* down into easy contact with the tops of all the keys, B of the instrument to prevent accidental lifting of the inner or back ends of the keys and thereby prevent lateral contact of the keys with the action-stems K, which in a piano will actuate the string-striking hammers and in an organ will operate the reed or pipe valves.

Figs. 1, 2, 4, and 6 of the drawings represent normal relative positions of the key-retainer H and key-board-latch devices when the key or button J is pushed inward, at which time the retainer is swung forward at its lower edge *h*, which then stands sufficiently above the keys B to allow depression of their outer ends and lifting of their inner ends while the instrument is being played upon by a performer.

Should it be desirable or necessary to change the pitch of tone of the instrument to conform more fully to the human voice or to the pitch of accompanying instruments of other kinds, it is only necessary to pull out the key or button J with the left hand, and thereby swing the retainer H to carry its lower edge downward and rearward to or next the keys B to prevent any one or more of them rising between the action-stems K should the person adjusting the instrument or a by-stander inadvertently lay hands on the exposed outer ends of the keys. Simultaneously with this down-swinging of the retainer to lock the keys, as aforesaid, the retainer will, by action on the block-stem *g*, press down the spring latch-plate E and disengage its pin *e* from the key-board-latch bar D, as illustrated in Fig. 5 of the drawings, thereby unlatching the key-board and allowing it to be shifted to the right or left by the performer turning the hand-wheel *c'* or other adjusting device with the right hand, while the pull button or key J is held outward by the left hand to assure constant action of the retainer H upon the keys to prevent lifting of them accidentally while the key-board is being thus shifted, and whereby

it will be impossible to cause collision of the keys and action-stems and break the stems or action or keys during the shifting of the key-board. After the key-board has been re-adjusted to the desired position, clearly indicated by a pointer or hand L, fixed to one of the middle keys B and moving in front of a relatively stationary scale M of natural and sharp note or pitch characters produced upon or applied to the instrument-case, as shown in Fig. 3 of the drawings, the key J will be again pushed inward and the reaction of the latch-spring E, when relieved of the pressure of the retainer H upon the stem *g*, will instantly carry the pin *e* into the next hole *d* of the key-board latch-plate D, and thereby securely lock the key-board against accidental movement and hold the keys in proper relation to the action-stems for playing the instrument, and the spring will also exert constant pressure through the stem *g* upon the retainer to hold it clear above the keys.

By holding the pull key or button J outward to retain the latch-pin *e* in disengaged position the key-board may be shifted sufficiently or to extreme adjustments either way, while two or more of the holes *d* of the latch-plate D pass over the latch-pin *e*, the index and scale L M indicating unfailingly when the key-board is in proper position to assure engagement of the latch-pin with any one of the holes in the latch-plate.

In the modification shown in Fig. 7 of the drawings the key-retainer N is arranged transversely under the forward or outer parts of the instrument-keys B, and consists, simply, of a strip of wood or metal hinged at *n* to the key-board frame A and provided with a pull-rod O, which extends downward through a slot in the case C and is provided with a pull-and-push knob or device P. When the rod O is pushed upward, the retainer N will be swung or turned upward edgewise under the keys, as shown in full lines, to prevent depression of the keys and lifting of their rear ends, the effect being practically the same as when the retainer H is depressed to the rear parts of the keys. When the rod O is pulled downward, the retainer N will be swung or turned downward on its hinges, as indicated in dotted lines, thereby leaving the keys B free again to be depressed by the performer after the key-board has been adjusted to the desired position, and as will readily be understood.

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

1. The combination, with a movable transposing key-board, of a latch device comprising an apertured plate on the key-board and a relatively stationary spring-actuated plate having a pin adapted to the apertures of the key-board plate, substantially as described.

2. The combination, with a movable transposing key-board, of a latch device comprising an apertured plate on the key-board, a

relatively stationary spring-actuated plate having a pin adapted to the apertures of the key-board plate, and lever and pull-rod connections operating the spring-actuated plate, substantially as described.

3. The combination, with a movable transposing key-board, of a latch device comprising an apertured plate *D d* on the key-board, a re-enforcing apertured plate *F f* on the instrument-frame next the plate *D*, and a spring-actuated plate *E*, having a locking-pin *e* adapted to the apertures *d f* of the plates *D F*, and means for operating the plate *E* to withdraw its pin *e* from the apertures *d f*, substantially as described.

4. The combination, with a movable transposing key-board, of an apertured plate *D d* thereon, a spring latch-plate *E*, having a pin *e* adapted to the apertures *d* of the plate *D*, a stem or arm *g* on the spring-plate, and lever and pull-rod connections *H I J*, actuating the latch, substantially as described.

5. The combination, with a movable transposing key-board, of an adjustable retainer for the keys, substantially as described, whereby the keys will be held against depression at the front and lifting at the rear and the action will be protected from injury as the key-board is adjusted, as set forth.

6. The combination, with the movable key-board of a musical instrument, of an adjustable transverse bar ranging along or next the

keys and retaining them against depression when adjusted to one position and allowing free depression of the keys when adjusted to another position, substantially as described.

7. The combination, with the movable key-board of a musical instrument, of a transverse rocking retainer bar or plate *H*, ranging along or next the keys, a rod *I* on said bar, and a pull key or button *J*, fitted in the instrument-case and linked to said rod, substantially as described.

8. The combination, with a movable transposing key-board, of a latch device therefor and a retainer preventing depression of the keys, relatively arranged substantially as described, whereby as the retainer is adjusted to hold the keys the key-board will be simultaneously unlatched to allow adjustment of it, as set forth.

9. The combination, with the key-board of a musical instrument, of a latch device *D d E e* for the key-board, said latch-plate *E e* carrying a stem *g*, a rocking retainer *H* for the keys adapted to said stem, and pull connections *I J* to the retainer, all arranged for operation substantially as described, for the purposes set forth.

ANDERS HOLMSTROM.

Witnesses:

EDWARD WILLIS,
JOHN KOEHLER.