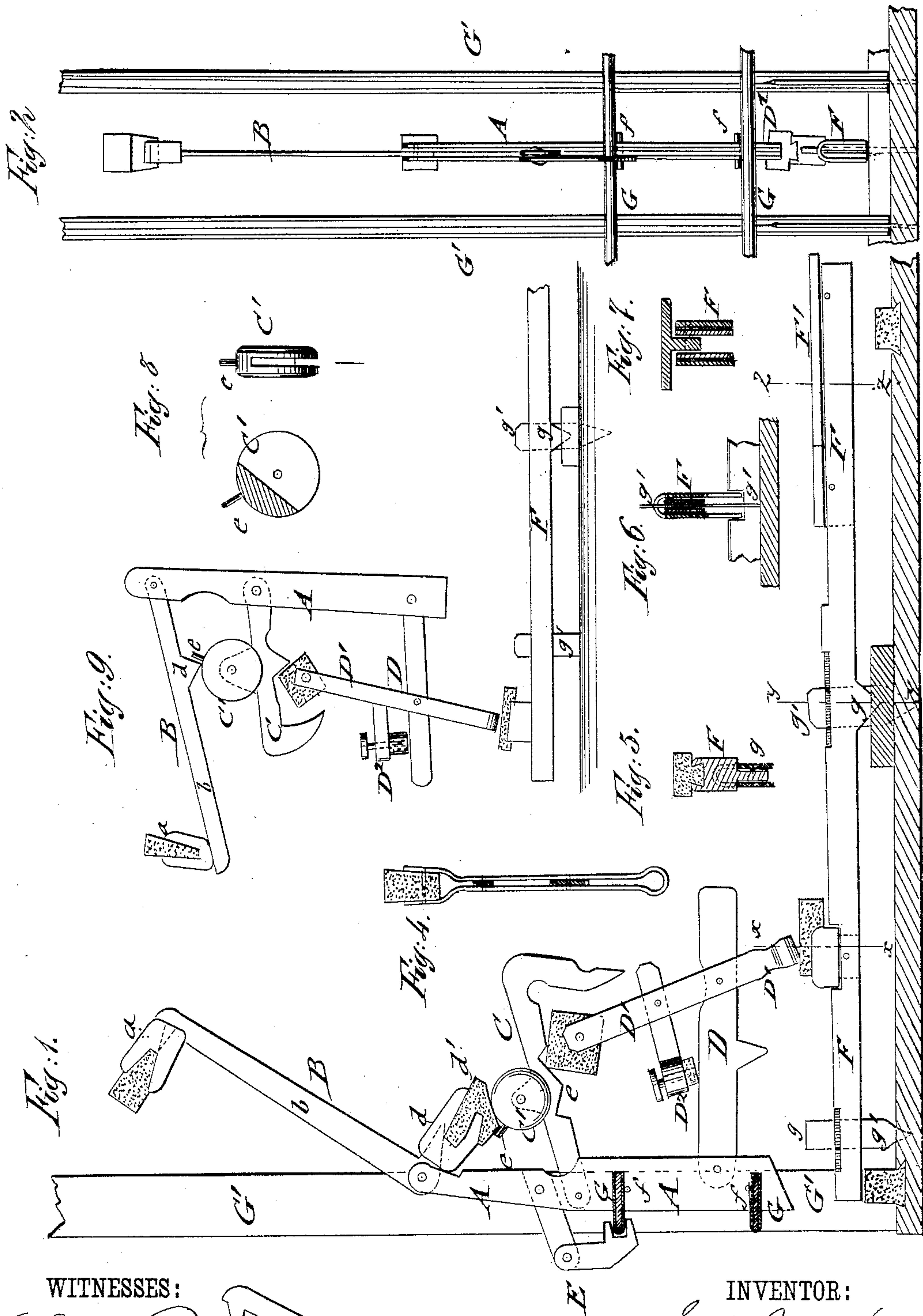


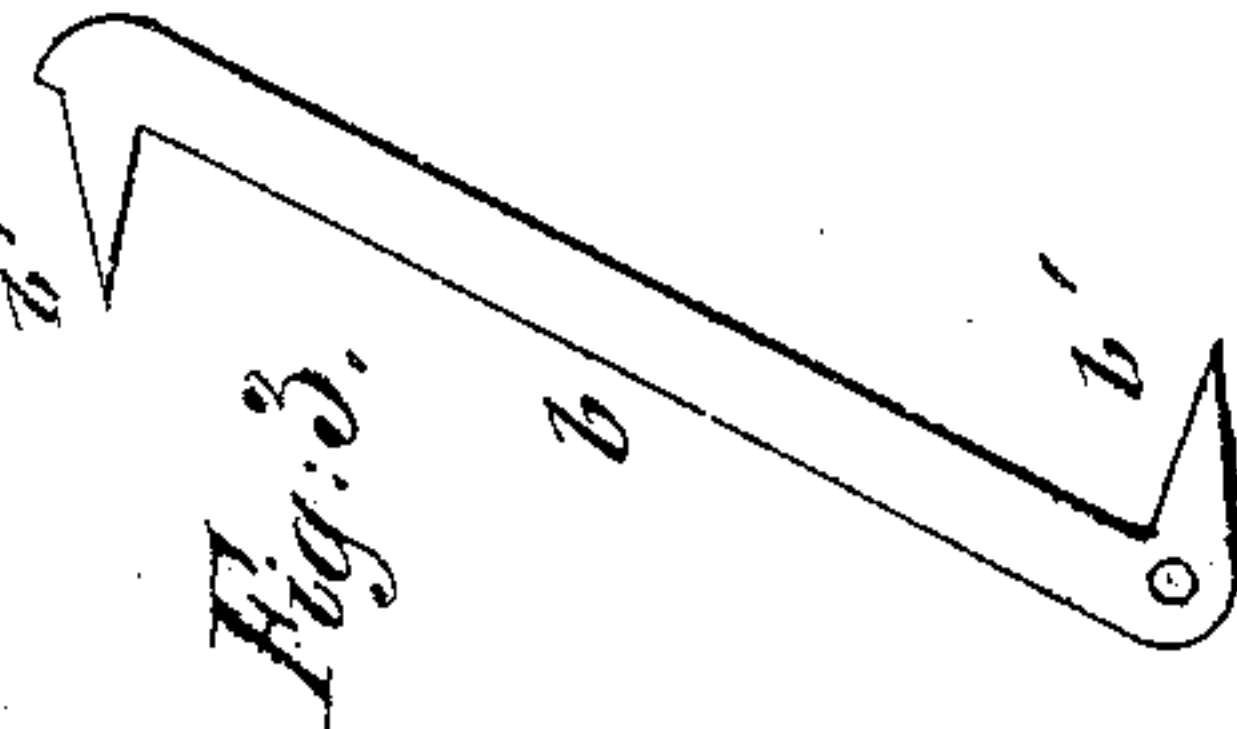
G. O. V. ROEDERN.
Pianoforte-Action.

No. 213,940.

Patented April 1, 1879.



WITNESSES:
Chas. Nida
C. Sedgwick



INVENTOR:
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE O. V. ROEDERN, OF INDIANOLA, TEXAS.

IMPROVEMENT IN PIANO-FORTE ACTIONS.

Specification forming part of Letters Patent No. **213,940**, dated April 1, 1879; application filed August 30, 1878.

To all whom it may concern:

Be it known that I, GEORGE O. V. ROEDERN, of Indianola, in the county of Calhoun and State of Texas, have invented a new and Improved Metallic Piano-Action, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a sectional side elevation of my improved metallic piano-action, shown as adapted to an upright piano. Fig. 2 is an end elevation of the same; Fig. 3, a detail side view of the hammer-rod; Fig. 4, a detail sectional end view of the transmitting-lever. Figs. 5, 6, and 7 are vertical transverse sections through the key-lever, respectively on lines $x x$, $y y$, and $z z$, Fig. 1. Fig. 8 shows a section and side view of the rotating wheel of the propelling-lever, and Fig. 9 is a side view of the action, shown as adapted to a square piano.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish for pianos an improved action that is perfectly proof against atmospheric influences, as all the movable parts and supporting parts of the action are made of sheet metal and without glue. The propulsion and escapement of the action is effected in the same direction as the stroke of the hammer, and the gravitation of the component parts to their points of inertia obtained without the aid of a spring or other appliance. Owing to the materials employed, the action is more durable, and especially adapted for warmer countries, while its construction secures a greater precision, and consequently greater responsiveness to the touch, and a more silent movement, than in actions made of wood. The working parts may, by slight changes, be used for upright as well as for square pianos.

The invention consists of a piano-action in which the different working parts and the supporting-standards, cross-bars, and frame are made of sheet metal and fitted and felted without glue. The hammer is made of a head-rod and base, and actuated by a rotating wheel and pin of the propelling-lever, which is operated by an upright arm of the transmitting-lever and by the key-lever. The working parts are pivoted to a sheet-metal standard, which is supported by pins or rivets in recesses

of sheet-metal cross-bars of a metallic supporting-frame, and locked by a jointed hook. The key-lever is bent of sheet metal, and guided by slots in posts of the base-boards.

Referring to the drawings, A represents an upright standard, to which the hammer B, propelling-lever C, transmitting-lever D, and locking-hook E are pivoted. The standard A is composed of two pieces of sheet metal, between which a piece of felt of suitable thickness is interposed and riveted. The hammer B is composed of a head, a , rod b , and base d , the head being recessed to receive the felting, and applied, either directly or by an intermediate slotted shield, to the pointed upper end of the hammer-rod. The hammer-rod b is made of a piece of sheet metal, with pointed projections b' at each end, but in opposite direction, the lower one carrying the recessed base d , to which is applied a triangular piece of felting, d' .

The hammer head and base may be made of wood or bent of sheet metal, as desired. The propelling-lever C is also stamped out of sheet metal and a recessed rotating wheel mounted thereon.

A pin or tooth, e , of the rotating wheel c' projects below the felting of the hammer-base.

At the lower side of the propelling-lever C is a triangular projection, e' , which rests on a felt cushion of an upright arm, D^1 , of the transmitting-lever D. The upright arm D^1 is pivoted to the transmitting-lever D, and adjusted thereon by a horizontal bar, D^2 , with set-screw at one or both ends, so as to secure the arm D^1 at any desired angle. The transmitting-lever D, the upright arm D^1 , and the adjusting-bar D^2 are all made of sheet metal, the arm D^1 resting on a felt cushion of the key-lever F, that is formed of doubled-up sheet metal, between which a felt lining is pressed in. The key-lever transmits the motion exerted on the key by the upright arm of the transmitting-lever to the propelling-lever, which, by its rotating wheel and pin, actuates the hammer, so that the same strikes the strings.

The supporting-standard A is secured by projecting side pins or rivets f to recessed sheet-metal and felt-lined cross-bars G of the action-frame G', and locked thereto by the

jointed and recessed hook E, as shown in Fig. 1. The outer end of the propelling-lever is curved down, so as to form a kind of guard for the upright arm of the transmitting-lever and secure its proper return.

The sheet-metal key-lever F moves on a triangular projection or fulcrum, *g*, and is guided by sheet-metal standards *g'*, that pass through slots of the lever. The key end of the lever is provided with a piece, *F'*, of wood, in the shape of a piano-key, to which the ivory mounting is applied. The guide-standards are driven into the base-board, to which also the grooved seat or bearing of the key-lever is applied. The felting for the key-levers is set into dove-tail grooves of the base-board.

When all the parts are in position and properly adjusted, the hammer is propelled by pressing down the key-lever and setting thereby the intermediate parts in motion. After striking the strings the hammer recoils sufficiently to clear them for vibration by means of the rotating wheel having passed the point of the triangular felting of the hammer-base, and the upright arm having passed the triangular downward projection of the propelling-levers. On the release of the key-lever the entire mechanism will readjust itself by means of gravitation, the different parts returning to the former points of inertia.

The action may also be used for square pianos, as shown in Fig. 9, and, if desired, the propelling-lever be dispensed with, in which case the rotating wheel is inserted into the upright arm of the transmitting-lever in place of the felting, giving thereby an excellent action, escapement, and readjustment.

I am aware that paper and glass have been heretofore patented as materials for a piano-action; but they are not susceptible of being drawn into the peculiar shapes of the parts that are desired by me, and which is readily accomplished with sheet or flattened metal.

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

1. In a piano-action, the combination of the swinging hammer, having felted base, with a rotating pin-wheel of the propelling-lever, substantially as specified.

2. In a piano-action, the combination of the swinging hammer, pivoted propelling-lever, having rotating wheel, and transmitting-lever, having adjustable upright arm, substantially as and for the purpose set forth.

3. The combination of the hammer-propelling lever, having triangular bottom projection and outer guard, with the transmitting-lever, having adjustable upright arm, substantially as specified.

4. In a piano-action, the combination of the fixed supporting-standard A, swinging hammer B, propelling-lever C, having rotating wheel C', transmitting-lever D, having adjustable arm D¹ D², and key-lever F, substantially as specified.

5. In a piano-action, the combination of the supporting-standard, having projecting side pin and pivoted locking-hook, with recessed cross-bars of the action-frame, to secure the standard rigidly in position, substantially as described.

6. In a piano-action, the combination of a doubled-up and felted sheet-metal key-lever, having triangular fulcrum, with guide posts or standards passing through slots of the same, substantially as specified.

7. In a piano-action, the combination of a doubled-up sheet-metal key-lever with a key-shaped piece secured thereto, substantially as shown and described.

8. A piano-action in which the supporting-frame, hammer, propelling, transmitting, and key levers are made of sheet metal properly felted, substantially as described, and for the purpose specified.

GEO. O. V. ROEDERN.

Witnesses:

F. C. ROHR,
E. L. MILLER.