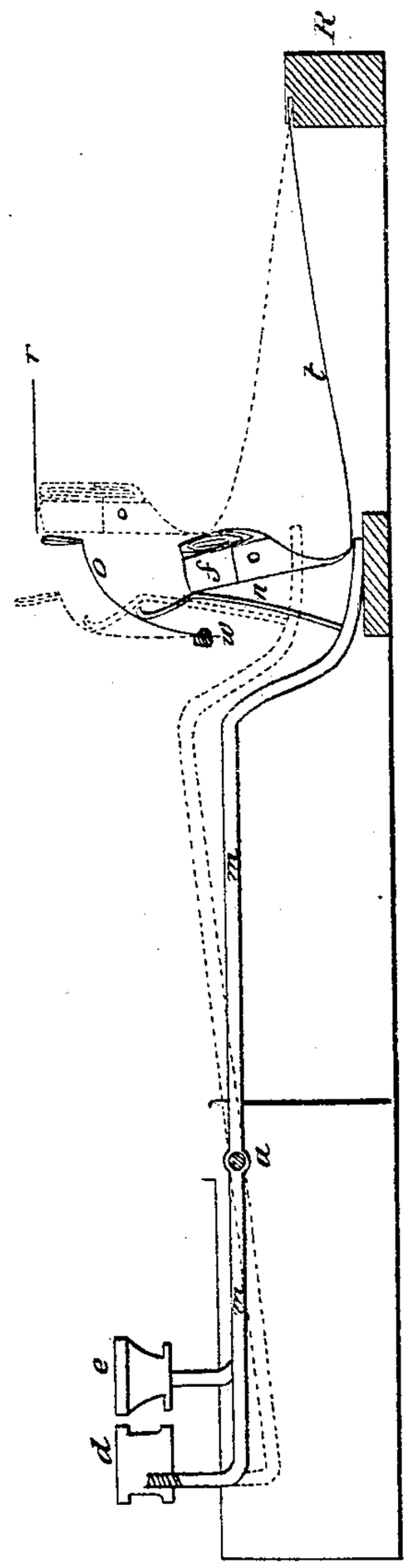
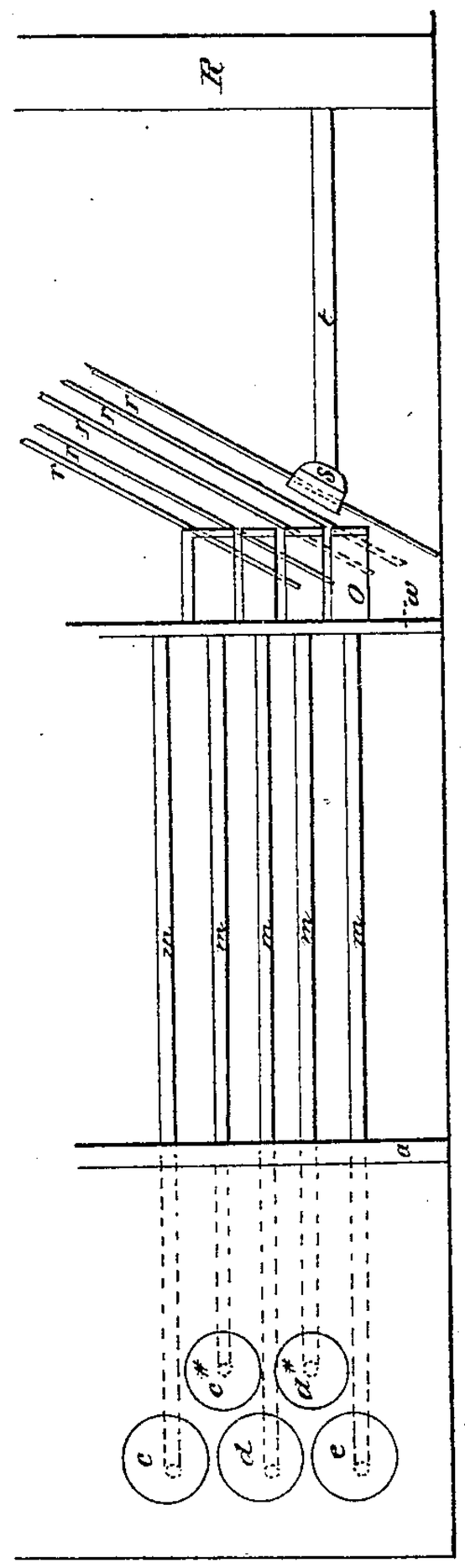
Richards & Hoffacker,

Piano Action.

No. 24,404. Patented Jun. 14, 1859.





Witnesses.

Charles Noble

Jul Noble.

Inventors.

Joseph Hoffacker.

Joseph Richards.

UNITED STATES PATENT OFFICE.

JOS. HOFFACKER AND JOS. RICHARDS, OF NEW YORK, N. Y.

KEY, &c., OF PIANOFORTES.

Specification of Letters Patent No. 24,404, dated June 14, 1859.

To all whom it may concern:

Be it known that we, JOSEPH HOFFACKER and JOSEPH RICHARDS, of the city, county, and State of New York, have invented new and useful Improvements in Pianofortes, and that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical section. Fig. 2, is a horizontal view of our improvements.

Similar letters of reference indicate corresponding parts in these figures.

The nature of our invention consists in improvements of the finger keys and of the action of the piano-forte as hereinafter described.

To enable others skilled in the art to make and use our invention we will proceed to describe its construction and operation.

In the annexed drawings *c d* and *e* represent the finger keys; *a*, the horizontal pivotal rod; *m m m* the principal levers; *n* the trigger, *o* the damper; *r* the string; *s* the hammer.

It will be perceived that the knobs *c*, *d*, *e*, are substituted for the keys of the usual piano-forte. The principal lever *m* is so arranged as to fit into the said knob; the upper part of the said lever being shaped into a screw and the knob having a corresponding nut, which is placed outside of the center of the said knob. By this eccentric position of the screw we are enabled to increase or decrease the distances of two adjoining keys; whereas in the present style of pianofortes the distance of these keys is fixed and unchangeable.

The pivotal rod *a* serves as a common pivot to all the levers of the piano forte, in such a manner, that the actions of all the various keys receive a certain degree of unity.

The end of the main lever *m* is bent, and on the same is fixed the trigger *n*, which consists of an inflexible rod having the double purpose of lifting the damper O and of affording a resting place for the hammer *s*.

The damper O consists of a thin elastic spring *o*, the lower part of which is fastened to a fixed horizontal (*w*) damper-rod connected with the pedal lever not shown on the drawing.

The hammer *s* consists of a fork-shaped frame containing several folds of leather fastened to the said frame by a pin passing from one side of the frame to the other and through the folds of the leather. The hammer lever consists of a thin piece of metal, *t*, the end of which is secured to the block R. The other end of the lever of the hammer rests freely on the end of the main lever *m*.

When the key is pressed the lever *m* turns on the fixed pivotal rod *a;* the lower end of the lever is elevated, and thereby the hammer is thrown upward and simultaneously the trigger bends the damper O backward. The hammer will then fall down to its former position by its own weight, and the damper will remain in its new position during such length of time as the knob or key is kept down; allowing the string to vibrate during such time. When the finger knob is released, the lever will go down, the spring of the damper will resume its original position, and the tone will be terminated.

The red lines of Fig. 1, show the position of the various parts at the moment when the hammer strikes the string.

All the various parts comprising the action herein described are formed of metal.

The hammer although heavier than the hammers usually employed will not rebound after falling back, because its lower end will rest indirectly on the block below and its upper end will lean on the trigger as clearly shown in Fig. 1, by the black lines. The hammer lever not being a spring and being permanently fastened on its end to the block will also assist to prevent any rebounding of the hammer.

The construction and action of the damper as represented on the drawing shows that the difference between our damper and the damper hitherto used consists mainly in availing ourselves of the elasticity of a spring instead of the mere weight of the old dampers.

The advantages of our improvements consist firstly in affording an easier play especially for children, for whom the knobs can be placed nearer than on any other piano. Secondly, the action being mainly constructed of metal instead of wood is less liable to the influence of changes in the temperature or of moisture, it is therefore not apt to require repairs or alterations. Thirdly, the sound is improved by the comparative simplicity of the arrangement and construction of the working parts.

What we claim as new and desire to secure by Letters Patent is:

1. The construction of the keyboard by substituting instead of the usual keys, knobs connected with the main levers substantially as described.

2. The pivotal rod *a* in combination with the main levers *m* substantially as described.

3. The construction of the damper O substantially as set forth.

4. The construction of the trigger *n* and its action on the damper O substantially as described.

5. The construction of the hammer *s* and its action in combination with the principal lever *m* substantially as described.

Dated at New York March 31, 1859.

JOSEPH HOFFACKER.
JOSEPH RICHARDS.

Witnesses:

CHARLES WEKLE,
JUL. WEKLE.