L. H. BROWNE.

KEY FOR PIANOFORTES.

No. 32,972. Patented Aug. 6, 1861.

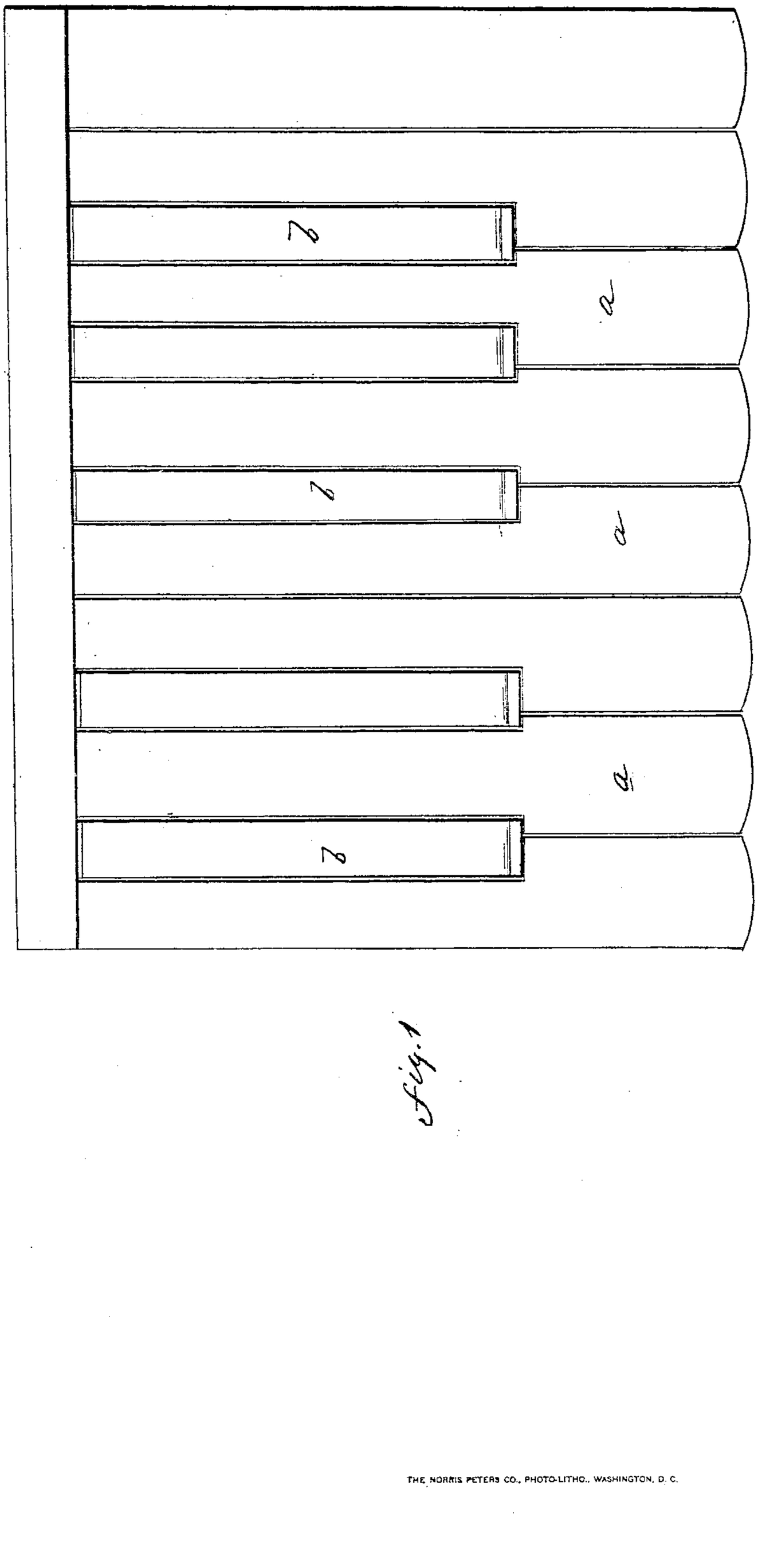


Fig. 1

Fig. 3

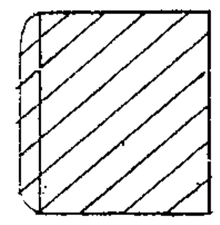
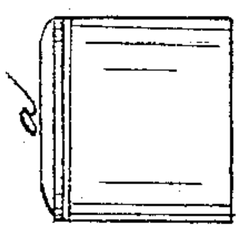


Fig. 2



UNITED STATES PATENT OFFICE.

LOUIS H. BROWNE, OF BOSTON, MASSACHUSETTS.

KEY FOR PIANOFORTES.

Specification of Letters Patent No. 32,972, dated August 6, 1861.

To all whom it may concern:

Be it known that I, LOUIS H. BROWNE, of Boston, in the county of Suffolk and State of Massachusetts, have made a new and useful improvement in the manufacture of keys for pianofortes, organs, melodeons, and all other musical instruments where similar keys are or can be used by a combination of porcelain and wood instead of ivory and wood or mother-of-pearl and wood, as now commonly in use; and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and correct specification of the same. Further, that I have therein set forth the nature and principles of my said improvement, by means whereof the same may be distinguished from anything designed to serve the same purpose and now commonly used, together with such parts as I claim and desire to secure by Letters Patent.

The drawing, Figure 1, is a top view of the keys of a piano-forte or other instrument where similar keys are used; "*a*" representing the porcelain part now substituted by me for ivory or mother-of-pearl; and "*b*" representing the ebony keys, one octave only being shown. The drawing, Fig. 2, represents the front end of a white key, the upper surface of which is slightly curved. The drawing, Fig. 3, is a sectional view of the porcelain key, across.

To enable others skilled in the art to make and use my improved manufacture, I will proceed to describe my manner of making and perfecting the same. It is first molded in steel molds, the material being subjected to a heavy pressure to make it compact. The obverse or finger side is made slightly curved, as in Fig. 2. Greater accuracy and certainty in the manufacture of the same from porcelain material is thus secured, by forming, as it were, a longitudinal rib or back-bone in the center; thus obviating in a great degree the otherwise inevitable springing, warping, or twisting, of the keys into short bends or twists, during the process of baking and enameling. The greater quantity is also serviceable in the middle because in the biscuit it absorbs more of the moisture in the enamel, and by that means precipitates more of the enamel on to the middle than upon the edges; and the heat in the enamel-kiln produces a lateral flow, thus obviating the slightly-apparent cavities, depressions, or inequalities, usually found upon a plane surface of porcelain, ceramic, or fictile, manufacture.

The front end of each key describes a segment of a circle, or other curve, which shape serves to compensate the unequal shrinkage incident to all articles of porcelain materials in the baking and enameling. Were this shape not adopted, the slightest deviation from a straight line in front would render the keys entirely useless for the purpose designed.

As the keys warp and become uneven to a greater or less extent on the surface, they are straightened in manner as follows: Either before or after the enameling process they are introduced into a muffle or oven open at the mouth and inserted in a reverberating furnace, where they remain until they have attained a degree of heat that will render them sufficiently ductile to yield to a pressure applied by weights to bring the tops to a level, and levers and cams to straighten the sides and square the back ends.

I polish the enamel in manner hereinafter set forth, thereby being enabled to give to porcelain an appearance superior to that of ivory, and a feel highly grateful to the touch. I pass them under or over revolving wheels or blocks charged with pulverized stone, known generally as either Arkansas, Turkey, or Hindoostan oil-stone, in water. The effect of the contact and attrition is to take off the bright and glossy appearance, and the feel peculiar to all articles of the fire-enamel finish, which would otherwise render the keys ill-calculated, if not entirely useless for the purpose intended, by the presence of a hard, cold feeling and a too-dazzling appearance.

What I claim as my invention, and desire to have secured to me by Letters Patent, is only as follows:—

The manner or process of straightening the porcelain as hereinbefore set forth.

In testimony that the foregoing is a correct specification, I have hereunto set my signature, this 30th day of December A. D. 1858.

LOUIS H. BROWNE.

In presence of—

A. M. MCPHAIL, JR.,

LUTHER BLODGETT.