E. Brown,

Piano.

No. 1,014. Patented Nov. 20, 1838.

Fig 1.

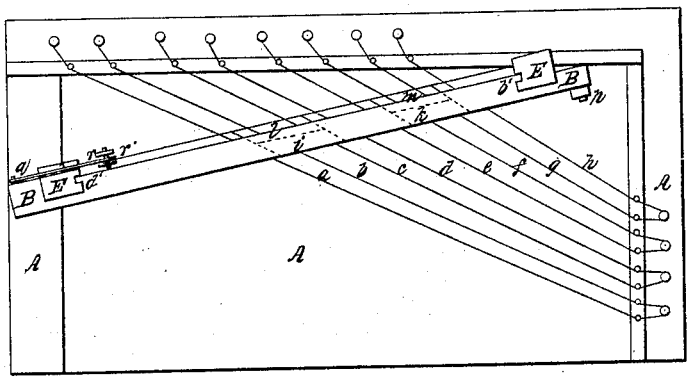


Fig 2.

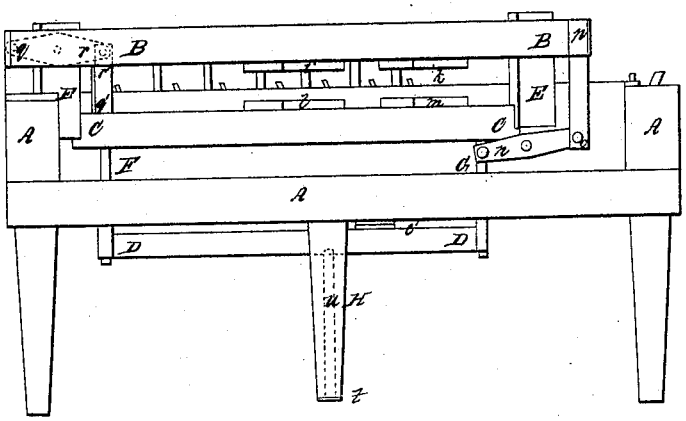
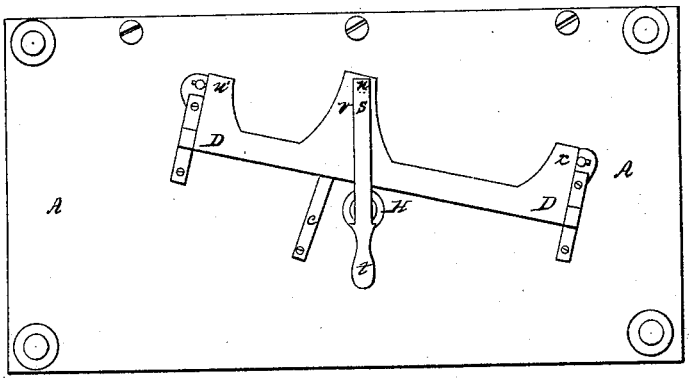


Fig 3.



UNITED STATES PATENT OFFICE.

EDWIN BROWN, OF BOSTON, MASSACHUSETTS.

PIANOFORTE.

Specification forming part of Letters Patent No. 1,014, dated November 20, 1838; Reissued December 31, 1839, No. 19.

To all whom it may concern:

Be it known that I, EDWIN BROWN, of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Pianofortes.

These improvements, the principles thereof, the application of said principles, by which the same may be distinguished from other inventions, the manner of using the same, together with such parts, improvements or combinations, I claim to be my inventions, and hold to be original and new, I have hereinafter set forth and described, which description, taken in connection with the accompanying drawings, herein referred to, composes my specification.

Figures 1, 2, 3, represent my improvements, Fig. 1 is a top view, Fig. 2 is a front elevation, and Fig. 3, a view of the underside or bottom of the piano forte.

The object of my invention is, to effect what is termed, "the single string change of the hammers", without any lateral motion of the hammers, as has usually been the practice heretofore. It has been necessary to fit and arrange these hammers, very nicely, in order to insure their perfect action when changed from the double to the single string. By my improvement one of the strings of each note, is clamped or held and thus prevented from vibrating, when the hammer strikes it. The other being free will vibrate and produce the sound. The machinery by which I effect the above operation, may be described as follows:

A, A, A, Figs. 1, 2, 3, represent the frame work or body of the piano, constructed in the usual manner, or in any other way to suit the arrangement of my improvements.

a, *b*, *c*, *d*, *e*, *f*, *g*, *h*, Fig. 1, are the strings or wires which are stretched over the sounding board, in the usual manner, by being attached to metallic pins, on the side and back of the piano, the latter being those by means of which the strings are strained or tuned.

B, B, Figs. 1, 2, is a long beam, constructed of wood or other proper material and extending over the strings or wires. This beam has dampers or cushions *i k*, covered with wash leather or other suitable material, attached to its underside. C C is another beam of similar construction to B, B, extending under the strings, and placed a little in the rear of the upper beam, or farther toward the back of the piano, so that the cushions or dampers may always more effectually clamp the strings. This beam has also attached to it the dampers or cushions *l*, *m*, similar to those above mentioned. These beams are connected together by means of the compound levers *no*, *op*, *qr*, *q′ r′* Figs. 1, 2, as represented therein, and are made to slide up and down in "guide grooves" *a′ b′* cut in the upright posts E, E, Figs. 1, 2, constructed of wood, iron or other suitable material. The beam C C is connected by means of the arms or uprights, F, G, Fig. 2, with a shaft D, D, underneath the piano, the journals of which rest and move in bearings attached to the underside of the framework, as seen in Fig. 3. This shaft is operated by the lever pedal *st*, which has a fulcrum in the bottom of the leg or fixture H, projecting from the underside of the piano. When these levers are acted upon the beams B, B, C C, together with the cushions or dampers *ik*, *lm*, are brought toward each other, and press between them or confine the strings *b*, *c*, *f*, *g*, thus checking their vibrations when struck by the hammers and leaving only the strings *a*, *d*, *e*, *h*, to produce the sounds.

It will be necessary to observe also, that the hammers strike against the strings, directly behind the places, where they are pressed upon by the cushions or dampers of the lower beam, thus effectually preventing any vibration.

A great advantage consequent on the arrangement above described, is diminishing the liability in the instrument of getting out of tune, as by this improvement, all the strings are equally acted upon by the hammers, whereas in other modes, particularly, when a lateral movement is given to the hammers, to change them from the double to the single string, some of the strings are struck more than the rest, so that the instrument soon becomes out of tune. This improvement has likewise another advantage over other arrangements for the same purpose, inasmuch as it can be applied to the smaller sized pianos in which the scales are more compact than in those, in which the other modes are adopted. This arrange-

ment also supersedes the necessity of using what are termed mutes, in tuning the instrument.

The manner in which the beams and levers are operated may be described as follows: The musician bears his foot on one end *t*, of the lever-pedal *s*, *t*, Fig. 3 which presses the connecting rod *u* Fig. 2, against the arm *v* of the shaft D, D, thereby raising it together with the arms *w*, *x*. To the sides of the arms *w*, *x*, are attached by means of pins, which allow them to move easily, the upright rods F, G, the tops of which press against the bottom of the beam C C thus raising it in the guide grooves *a' b'*. Near the top of the upright rod G is attached, in a proper manner, one end *n* of the lever *no*, *op*, so that when the rod G is raised it depresses the end *o* of the lever, and at the same time, brings down one end of the beam B, B in the guide grooves *a' b'*, by means of the arm *op* of the compound lever, which is attached to it at *p*. The other end is brought down, at the same time, and in the same manner by the compound lever *qr*, *q' r'*, as shown in Fig. 2. There is a spring *c'* attached to the underside of the frame, as represented in the drawings, or in any other suitable manner, which spring causes the shaft D, D, and the parts connected thereto, to return to their original position, when the pressure of the foot is removed from the pedal, and thus relieves the strings, so that the hammers shall cause all to vibrate.

Having thus fully described and set forth the nature of my improvements I shall claim in the same as follows.

1. The arrangement or combination of the parts together, substantially, as described.

2. Clamping the strings between cushions or dampers, situated with regard to each other, and affixed on bars or beams in the manner herein above set forth.

3. The arrangement of the machinery, which in connection with the beams B B, C C gives motion to said beams when the pedal is pressed down by the musician.

In testimony that the above is a true description of my said inventions and improvements I have hereto set my hand this twenty first day of July in the year eighteen hundred and thirty eight.

EDWIN BROWN. [L. S.]

Witnesses:
R. H. EDDY,
SILAS ALLEN, Jr.

[FIRST PRINTED 1914.]