W. Cumston,

Piano Attachment,

No. 1,275, Patented Aug. 3, 1839.

Fig. 1.

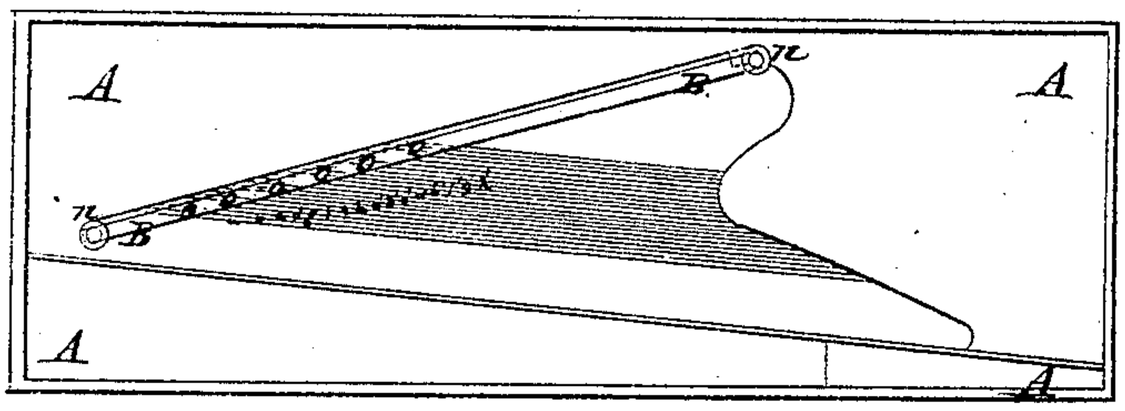
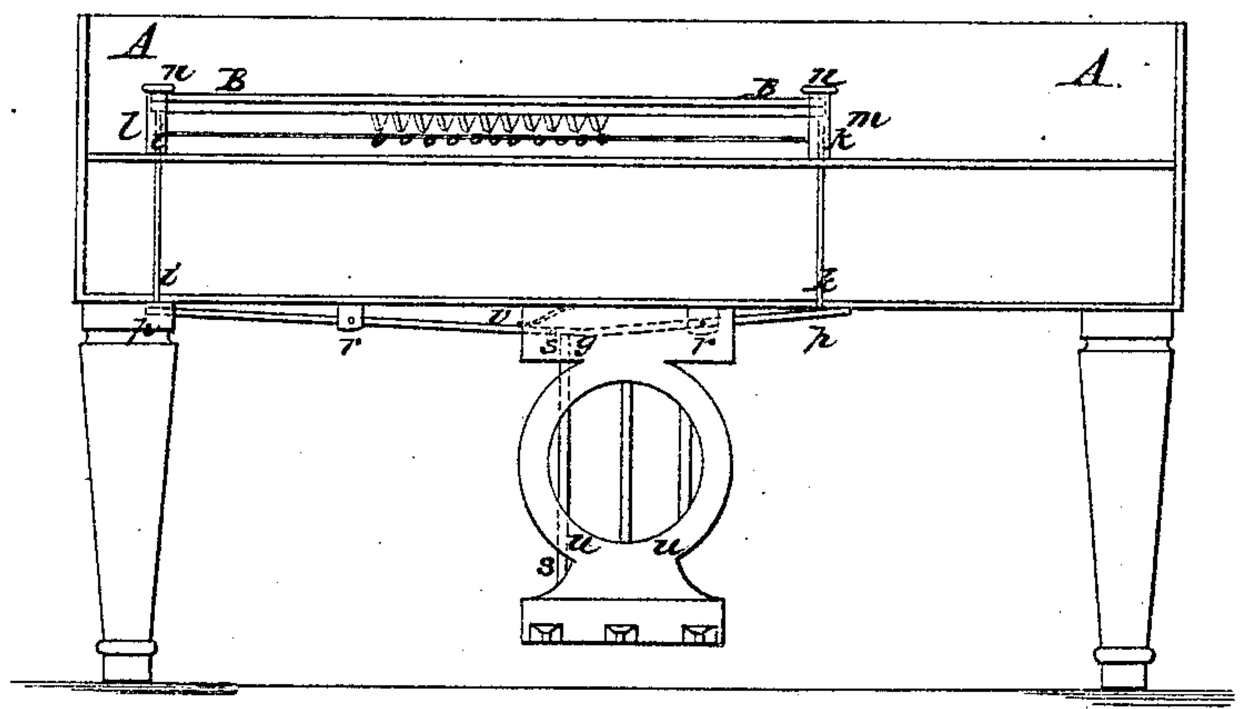


Fig. 2.



UNITED STATES PATENT OFFICE.

WM. CUMSTON, OF BOSTON, MASSACHUSETTS.

PIANOFORTE.

Specification of Letters Patent No. 1,275, dated August 3, 1839.

To all whom it may concern:

Be it known that I, WILLIAM CUMSTON, of Boston, in the county of Suffolk and State of Massachusetts, pianoforte manufacturer, have invented a new and useful Improvement in Pianofortes.

This improvement, 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 as my inventions, and hold to be original and new, I have herein set forth and described, which description, taken in connection with the accompanying drawings, herein referred to, compose my specification.

The object of my invention is to effect the change from the double to the single stringed pianoforte, or more directly to check the vibrations of one string of each tone or note in the instrument. The method by which this change has been usually effected heretofore is by a lateral movement of the hammers, and in order to insure their perfect action great care and nicety has been necessary in the fitting and arrangement of these hammers.

The machinery by which I produce the above mentioned change may be described as follows:

Figures 1, and 2, of the accompanying drawings represent my improvement. Fig. 1, is a plan and Fig. 2 is a longitudinal section of the same.

A, A, A, Figs. 1, and 2, represent the framework or body of the piano constructed in the usual manner or in any other way to suit the arrangement of my improvement.

a b c d e f g h a′ b′ c′ d′, &c., Fig. 1, are 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.

B B is a long beam which may be constructed of any suitable metal or it may be formed of wood and loaded with lead or other heavy material. This beam rests on the tops of upright arms *i i k k*. These arms move up and down and are guided near their tops by the cylindrical tubes *l*, *m*. These tubes have openings in their sides to allow the beam B B, to move freely up and down and caps *n n* screwed to their tops to keep the beam in place.

The underside of the beam B B is faced with wash leather or other suitable material and also has attached to it the wedge shaped projections *o o o o*, which are arranged at suitable distances, from each other so that when the beam descends they may come between the proper spaces between the strings. This arrangement will be more readily understood by an examination of Fig. 1, where the wedges are represented by dotted lines across the beam the center line representing the angle of the wedge. The wedges being inserted between the strings *b c f g*, *b′ c′ f′ g′*, it will be seen, will check their vibrations and allow the strings *a d e h* *a′ d′ e′ h′* or one string of each tone or note to vibrate and produce the sound. The manner by which the descent of the beam B B is effected as follows: The bottoms of the arms *i i k k* are attached to the ends *p p* of the levers *p q p q* which have fulcrums at their centers in the blocks or bearings *r r* attached to the underside of the piano. The other ends of the levers are so arranged that one may rest upon the other and are supported on the top of the upright arm or pedal stick *s s* of the lever pedal *t*, which has a fulcrum in the pedal frame *u u*.

The operation of the above machinery may be described as follows: The musician presses his foot upon the pedal *t* and raises the arm *s s*, which works the levers *p q p q*, so as to lower the arms *i i k k* the beam B B then descends by its own weight and the wedges are arranged with the strings as above described. When the foot of the musician is removed from the pedal, the spring *r* operates on the levers *p q p q*, and restores the several parts to their original positions.

The advantages of the above arrangement, are first diminishing the liability in the instrument of getting out of tune by having all the strings equally acted upon which is not the case where the hammers are moved laterally. Second, its capacity to be adapted to small sized instruments and lastly this arrangement supersedes the necessity of using mutes in tuning the instrument.

Having thus described my improvements I shall now proceed to specifically point out those parts I claim as my invention and hold to be original and new:

1. I claim checking the vibrations of the strings by the interposition of wedges or mutes between them, the wedges being arranged on a beam as above described.

2. I claim a beam made to descend by its

own weight by being loaded or constructed of metal .

3. I claim the arrangement of the arms and levers which in combination with the lever pedal *t*, produce the descent of the beam B B.

In testimony that the above is a true description of my said invention and improvement I have hereto set my hand and seal, this nineteenth day of March in the year of Our Lord, eighteen hundred and thirty nine.

WM. CUMSTON. [L. S.]

Witnesses:

WM. SMITH,

EZRA LINCOLN, Jr.