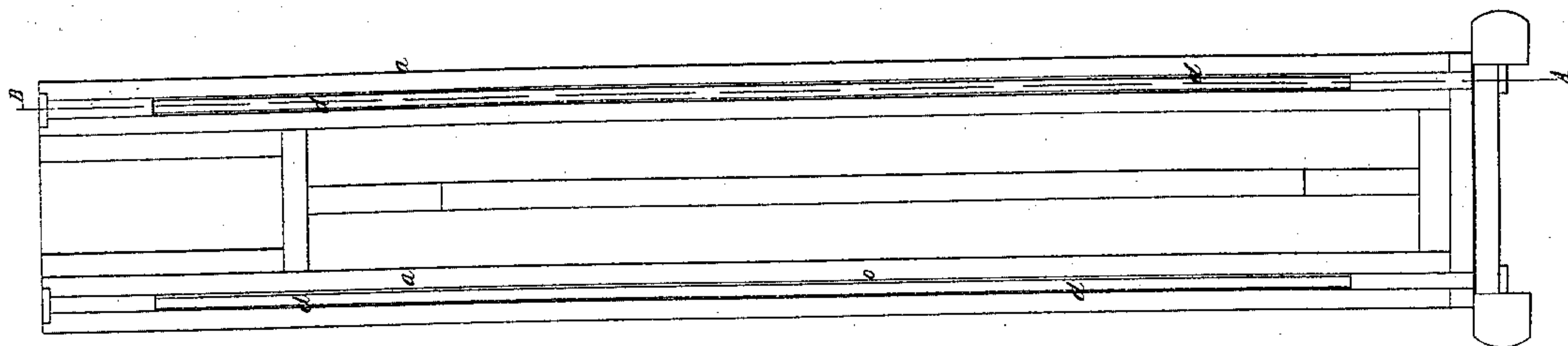


*L. Gilbert*

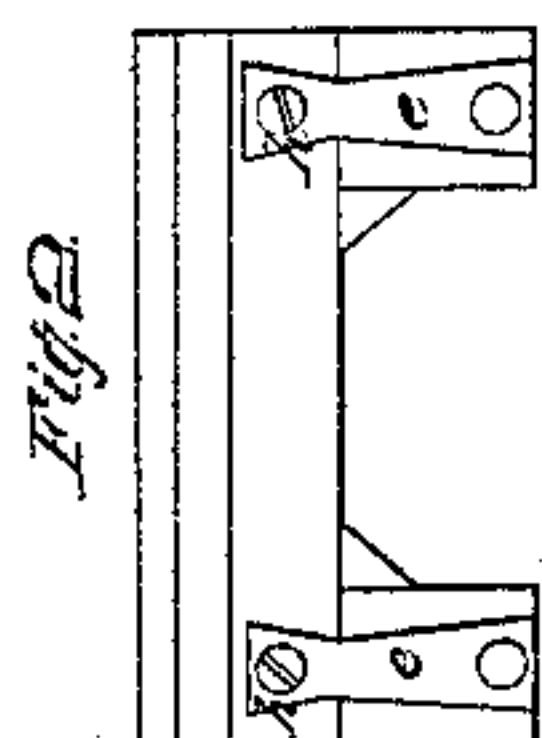
*Piano*

*N<sup>o</sup> 7,441.*

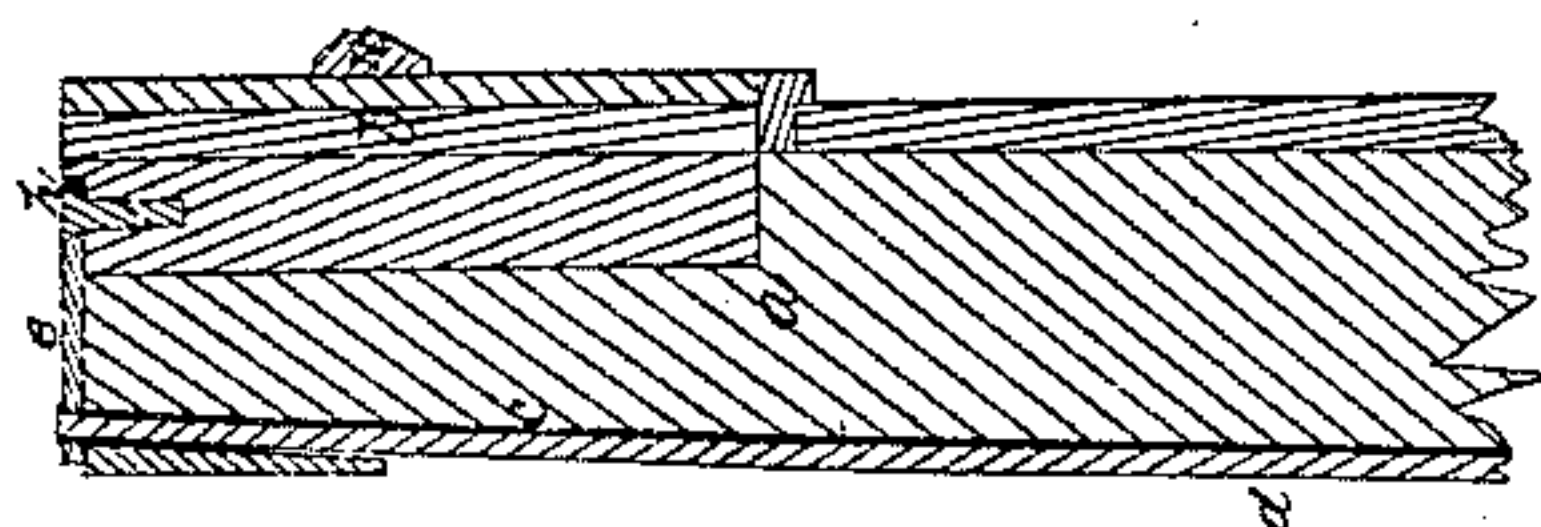
*Patented June 18, 1850.*



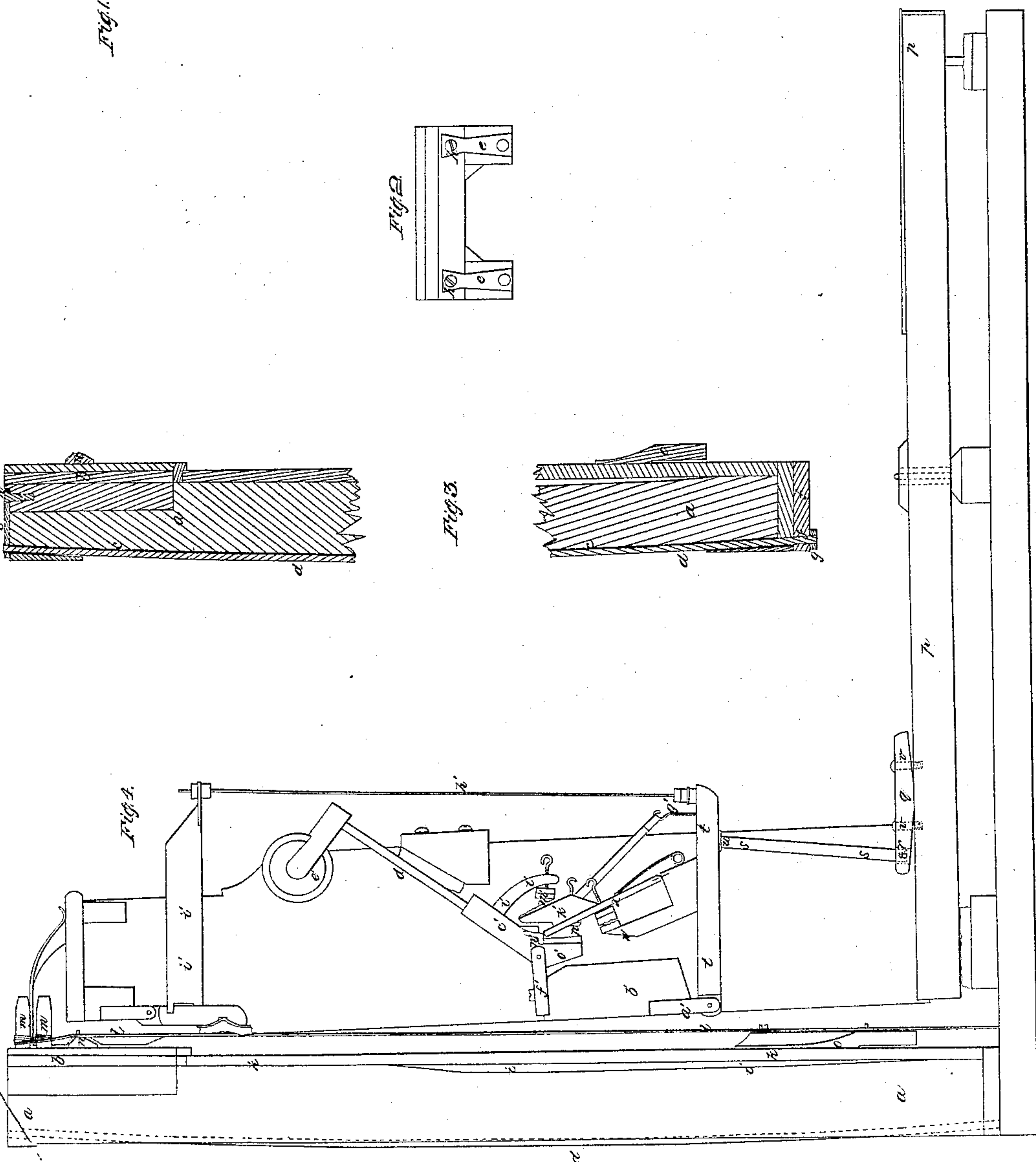
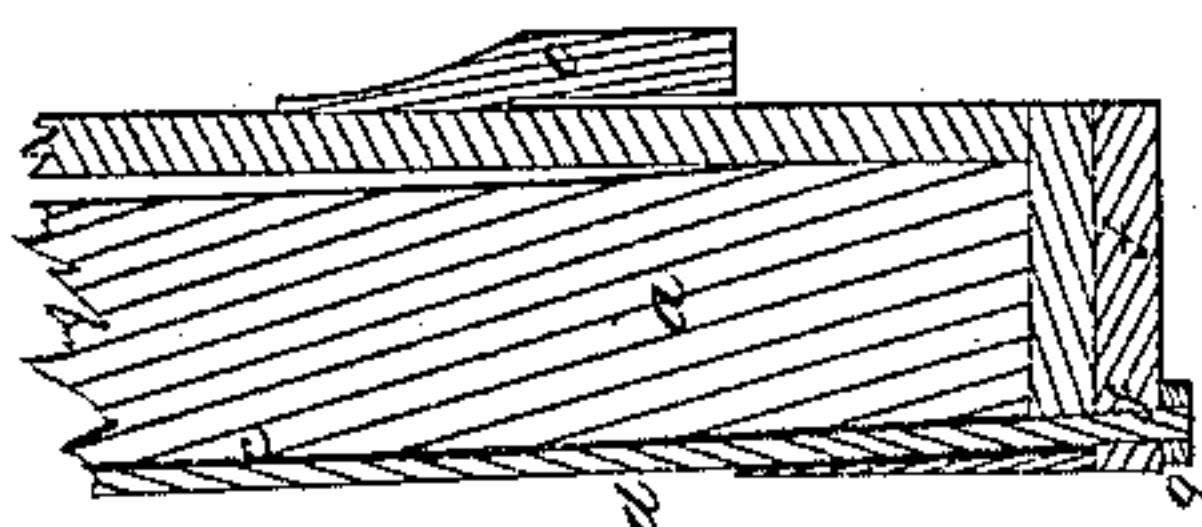
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



# UNITED STATES PATENT OFFICE.

LEMUEL GILBERT, OF BOSTON, MASSACHUSETTS.

## UPRIGHT PIANOFORTE.

Specification of Letters Patent No. 7,441, dated June 18, 1850.

*To all whom it may concern:*

Be it known that I, LEMUEL GILBERT, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Upright or Boudoir Pianofortes, as I term them, and that the following description, taken in connection with the accompanying drawings hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements by which my invention may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

My first improvement is upon the frame of the piano, and is devised for the purpose of giving additional strength to said frame so that it may more effectually resist the strain of the strings. This improvement is represented in Figure 1 which is an elevation of a portion of the back of such a piano. Fig. 2 is a plan of the same and Fig. 3 is a detail vertical section taken in the plane of the line A B Fig. 1.

My other improvements are in the action of the said upright pianos, and consist in the use of a regulating button on the key-lever which serves, by being altered from time to time, to keep the jack close to its work in throwing the hammer—also in connecting the back catch directly to the jack in part and partly to the hammer butt, and lastly in combining a regulating button passing through the swinging part of the jack with the butt of the hammer, by which I am enabled to regulate the throwing off the hammer by throwing the jack out sooner or later after each blow. These several improvements are represented in Fig. 4 of the accompanying plate of drawings which is an elevation of one section of my improved action.

I shall proceed first to describe my improvements in the frame of upright pianos above referred to. These frames have heretofore usually been constructed with a series of vertical standards, similar to those shown at *a a*, *a a* Figs. 1, 2 and 3 to which the rest pin block *b b* has been glued. But it has, I believe, invariably been found, that unless some strengthening brace be connected or combined with these standards, the tension of the strings, when they are strained up to concert pitch, has a tendency

to and generally does cripple and crack these standards; and by this means the instrument soon becomes imperfect, and is not susceptible of being tuned up to the said concert pitch. This tendency I obviate by cutting in the center of the back of each of these standards in a frame, and throughout the length of each, a curved groove *c c*, *c c* as shown in Figs. 1 and 2, and by dotted lines in Fig. 4. In each of these grooves is fitted a sustaining and strengthening metallic rod *d d*, *d d*. The top of these rods is formed with a head which rests on the top of the small plates *e e*, which confine the standards and rest block together. The lower ends of these rods pass through the iron plate *f f* at the bottom of the frame, and to which the pitch pins are confined, and each of said rods has a screw cut on it, on which a nut *g* is turned up so as to bear snugly against the underside of said plate. The small plates *e e* are countersunk in a double dovetail space, formed partly in the top of each standard and partly in the top of the rest block, being confined to said block by a screw *h* as shown in Figs. 2 and 3. Each of the standards *a a* is curved or cut out at the front, so as to leave the space *i i* as shown in Fig. 4, between them and the sounding board *k k* to permit its vibrations &c. The strings of the instrument pass as shown at *l l* Fig. 1 from the tuning pins *m* in the rest block over the bridges *n* and *o* to the hitch pins in the iron plate *f f*, and tend, when strained, as will readily be seen by inspection of Fig. 4, to bend the standards and cripple them at the center, but this is thoroughly prevented by the rods *d d* which bear against the bilge in the grooves in said standards at the center and operate to counteract the tendency to bend, as aforesaid at these points of the standards.

I shall now proceed to describe my several improvements in the action of upright pianos, beginning with that which consists in the use of an adjustable rocker bar on the key lever, by which the jack can always be kept close to its work on the hammer.

*p p* is the key lever, arranged in the usual way, and *q* is the rocker bar above referred to, placed in proper position on the upper side of that part of the key lever which moves the action. The end of this rocker bar, nearest the strings, has a circular hole cut through it, as shown by dotted lines in



Fig. 4, across which hole is placed the bearing pin *r*. The lower end of the vertical stem *s s*, has a fork formed in it, as shown by dotted lines in said Fig. 4; and this fork fits  
 5 over and plays, with friction however, on the said pin *r*. The upper end of this stem is fastened to the underside of the lever arm *t t* (on which the jack *w x* is supported) by the leather washer *u* which is glued on one  
 10 side to said arm and on the other side to said stem. At proper positions on each side of the center of the rocker bar *q*, are fitted the two regulating screws *v v*, by moving or turning which, the stem *s s* may be raised or  
 15 lowered, and the action of the key lever on the jack *w x*, and of the latter on the hammer may be regulated, or as above remarked, by the use of this adjustable rocker bar, the jack may always be kept close to its  
 20 work. The lever arm *t t* has a fulcrum in the forked block *a'* depending from the underside of the rail *b'*, and the butt or center block *c'* of the hammer *c' d' e'* has a fulcrum in the forked block *f'* fastened to  
 25 the top of said rail. Near the outer end of the lever arm *t t*, is arranged a screw pin *g'*, from which a band passes to the butt *c'* of the hammer and from a point on said arm *t t* near said screw pin *g'* a rod *h'* stretches  
 30 or connects with the damper levers *i' i'* Fig. 4. By this connection of the lever arm *t t* and hammer butt *c'* and damper levers *i' i'*, and by the use of the stem *s s* and rocker bar *q*, arranged together and with the key  
 35 lever as above described, the whole action is effectually tied together, so that the return of the key lever brings all parts of the action back to their respective proper positions for another blow.  
 40 My second improvement in the action, consists in connecting a back catch *k'* directly to the swinging part or fly *x* of the jack, and arranging a curved arm *l' l'* on the lower side of the hammer stem *c'*, and  
 45 combining with said curved arm a regulating button *m'* arranged as shown in Fig. 4. A piece of flannel *n'* is fitted, in proper position, on the hammer butt, as shown in the drawing, so that when said butt falls against  
 50 the bearing face of the back catch *k'*, it shall make no noise. By this improvement, it will be seen that the back catch can be more conveniently and compactly arranged in the action, and be brought into closer proximity  
 55 to the hammer butt, than by having said back catch, independent of the jack, at-

tached to the top of a wire fastened into the lever *t t* in the usual way. This improvement also prevents the "slapping", as it is called, of the swinging part or fly of the  
 60 jack, which, as actions are now arranged in upright pianos, invariably occurs, and is exceedingly objectionable.

Lastly, I construct the center block of the hammer with a projection *o'*, extending  
 65 below the center of motion, and the front face of which projection makes an obtuse angle with the stem of the hammer and as shown in Fig. 4. In combination with this projection I use a regulating button *p'* passing  
 70 through and adjustable in the fly *x* of the jack, by turning which button in or out, I am enabled to throw the jack out from its seat of action in the center block of the hammer, sooner or later after each blow.  
 75

Having thus described my improvements in boudoir pianos, I shall state my claims as follows:

What I claim as my invention and desire to have secured to me by Letters Patent, is—  
 80

1. Combining with each of the standards *a a*, *a a* of the frame, a sustaining and strengthening rod, arranged in a curved groove in the back of said standards, and operating substantially as herein above  
 85 described.

2. I claim, connecting the stem *s s* to the rocker bar, fastened to the key lever as described, and also to the horizontal arm *t t* on which the jack &c. is supported, by which  
 90 the whole action becomes attached to the key lever, and the hammer is made to return when the end of the key lever descends, all as herein above set forth.

3. I also claim combining the back catch  
 95 with the fly of the jack as above set forth, and in combination with a jack and back catch so arranged, the curved arm *l' l'* projecting from the hammer stem, and having a regulating button *m'* connected to said  
 100 arm as above set forth.

4. I claim regulating the throwing off the hammer from the strings, by the projection *o'* from the center block of the hammer and below its center of action, in combination  
 105 with a regulating button passing through the fly of the jack.

LEMUEL GILBERT.

Witnesses:

EZRA LINCOLN,  
 A. M. MCPHAIL, Jr.