

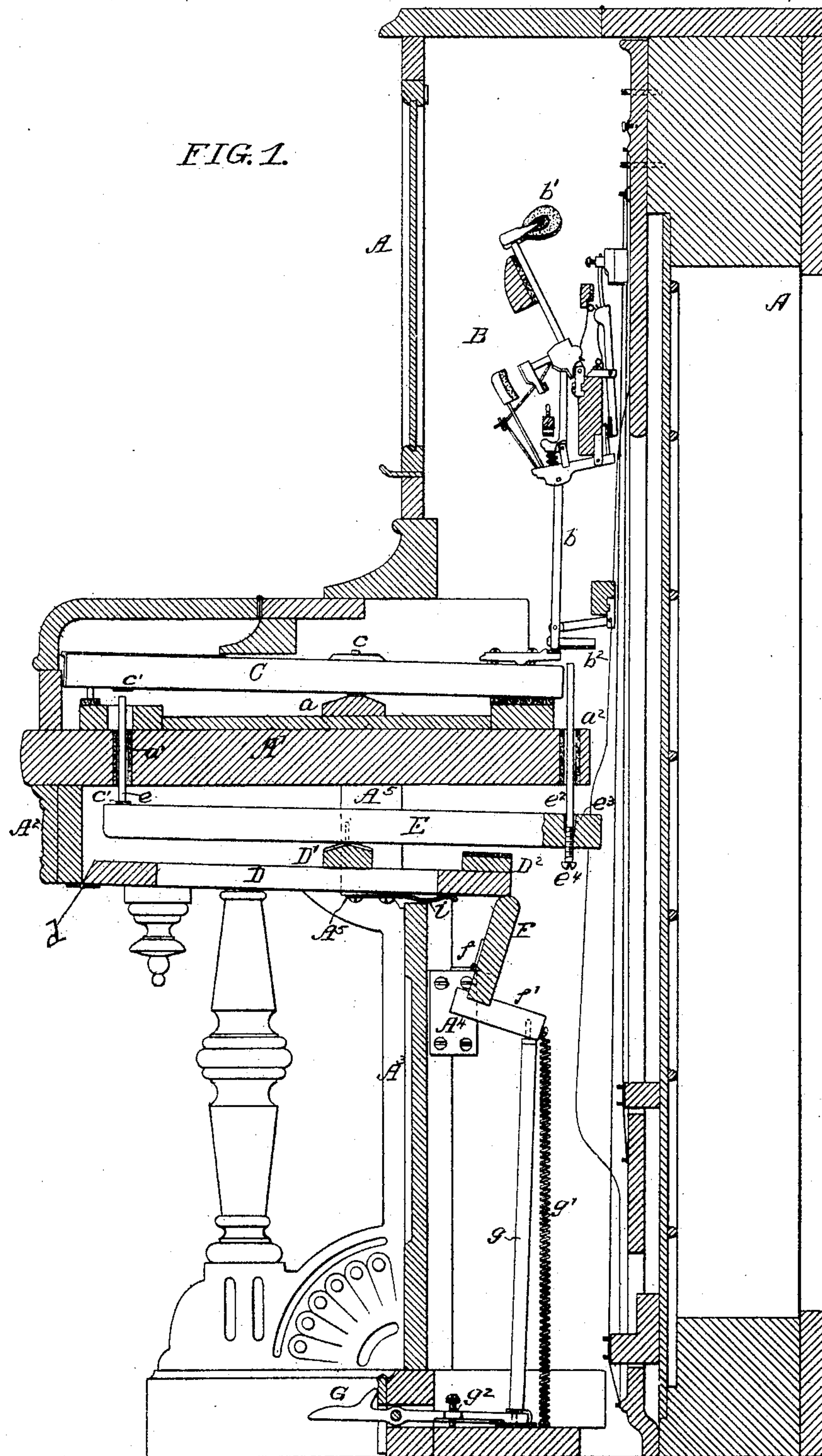
(No Model.)

3 Sheets—Sheet 1.

P. WUEST, Jr.
PIANO KEY COUPLER.

No. 584,721.

Patented June 15, 1897.



Witnesses:
 H. D. Goodwin
 Will. A. Bam.

*Inventor: Philip Wuest Jr.
by his Attorneys
Hawson & Hawson*

(No Model.)

3 Sheets—Sheet 2.

P. WUEST, Jr.
PIANO KEY COUPLER.

No. 584,721.

Patented June 15, 1897.

FIG. 2.

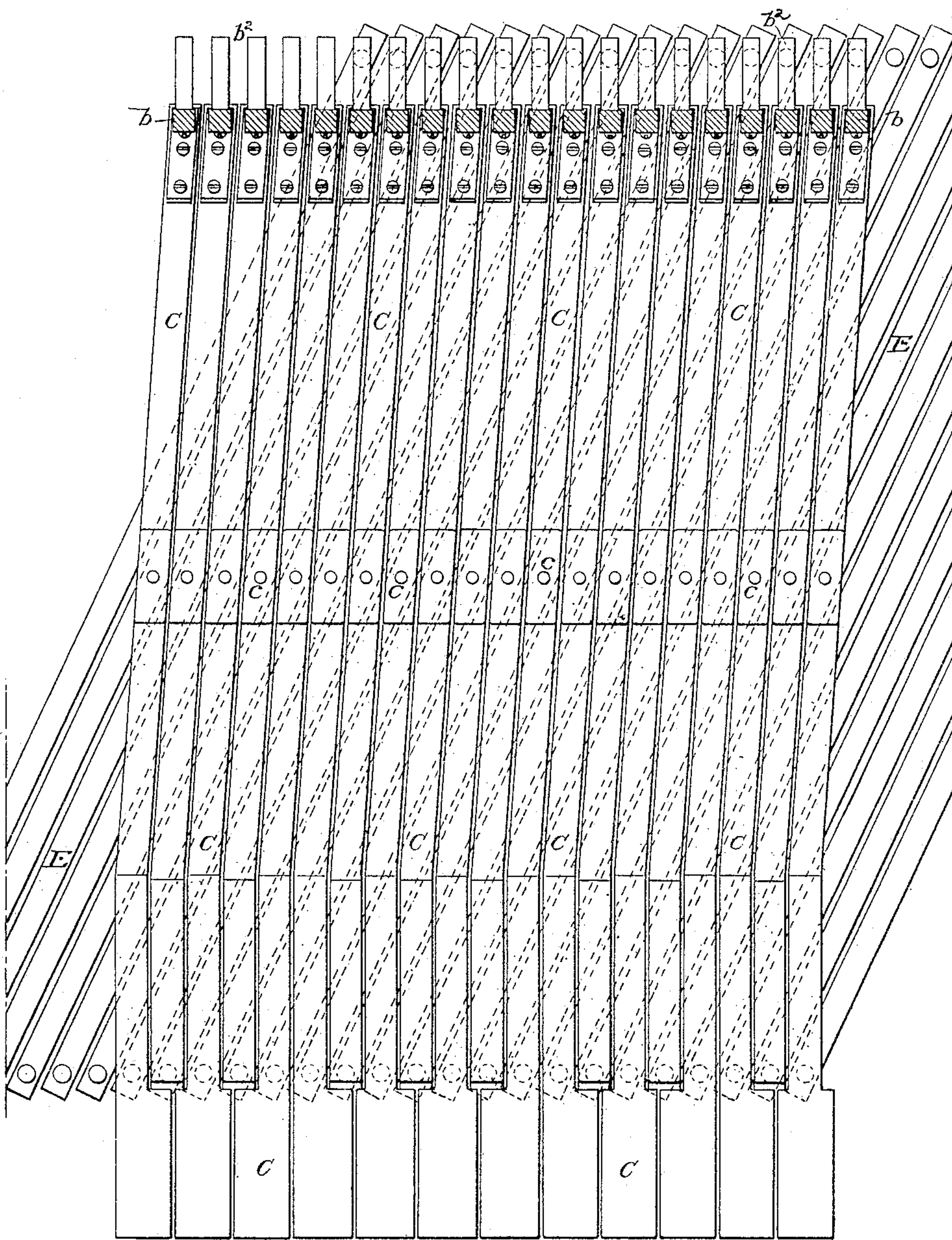
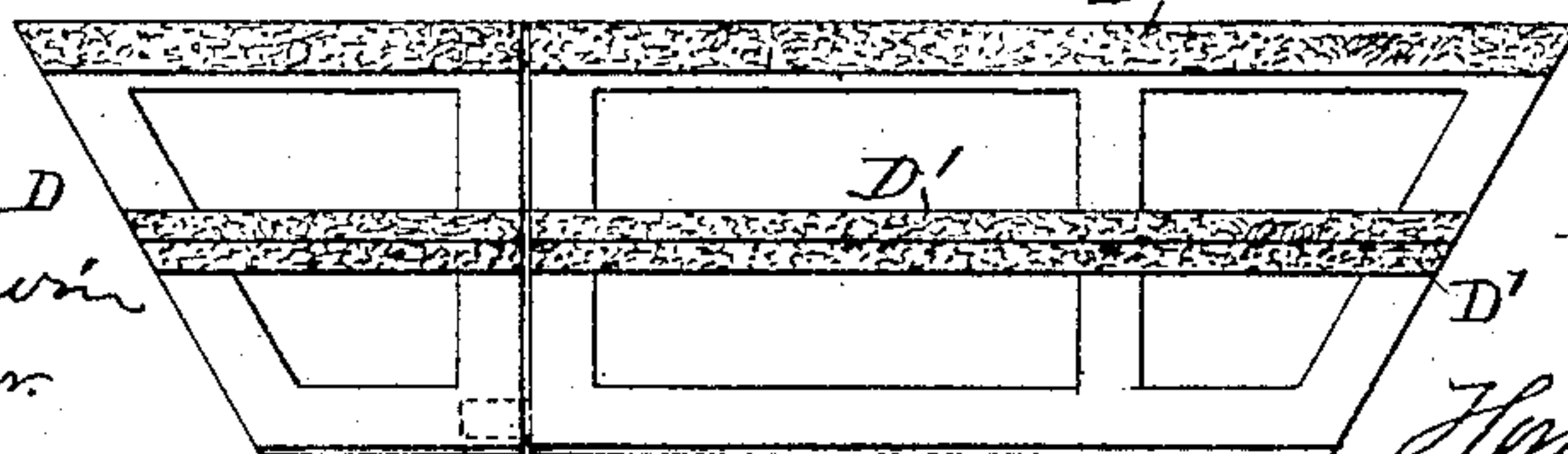


FIG. 5. D₂



Witnesses:
H. D. Goodwin
Will. A. Barr

Inventor:
Philip Wuest Jr.
by his Attorneys

Howard Howard

(No Model.)

3 Sheets—Sheet 3.

P. WUEST, Jr.
PIANO KEY COUPLER.

No. 584,721.

Patented June 15, 1897.

FIG. 3.

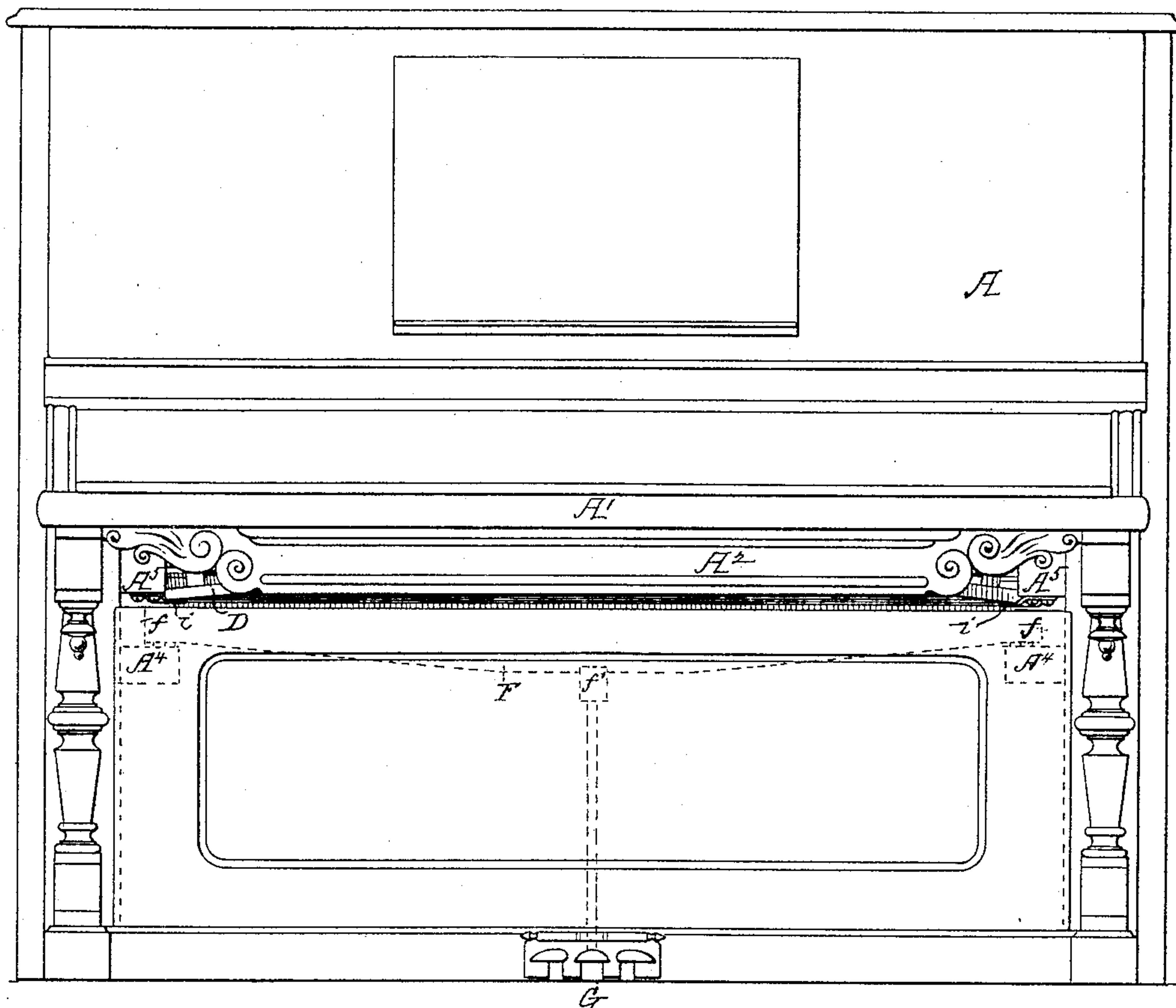
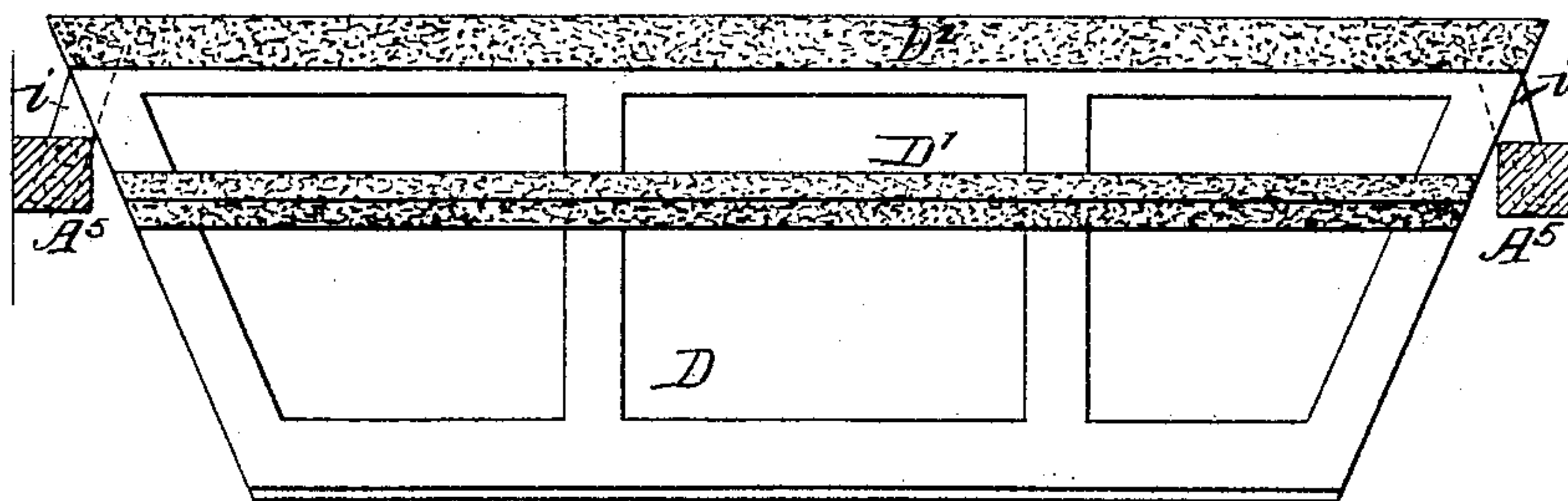


FIG. 4.



Witnesses:
F. D. Goodwin
Will. A. Bam.

Inventor:
Philip Wuest Jr.
by his Attorneys
Howan & Howan

UNITED STATES PATENT OFFICE.

PHILIP WUEST, JR., OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
CHRISTOPHER J. HEPPE AND FLORENCE J. HEPPE, OF SAME PLACE.

PIANO-KEY COUPLER.

SPECIFICATION forming part of Letters Patent No. 584,721, dated June 15, 1897.

Application filed December 6, 1895. Serial No. 571,309. (No model.)

To all whom it may concern:

Be it known that I, PHILIP WUEST, Jr., a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Piano-Key Couplers, of which the following is a specification.

My invention relates to certain improvements in piano-key couplers in which the coupler is independent of the keys while out
10 of action and when thrown into action will act freely without undue pressure on the part of the performer.

My invention is based on the application for patent for piano-key coupler filed by me
15 on May 31, 1894, Serial No. 513,051.

My present invention relates particularly to the method of mounting the coupler so that it will be more easily operated and adjusted.

20 In the accompanying drawings, Figure 1 is a vertical sectional view of an upright piano, illustrating my invention. Fig. 2 is a plan view of a portion of the keys, showing some of the coupling-levers. Fig. 3 is a front view
25 of the piano. Fig. 4 is a detached view of the skeleton frame on which the coupling-levers are mounted, and Fig. 5 is a view showing a two-part skeleton frame arranged so that the bass can be coupled with the treble.

30 My improved coupler can be applied to a piano under the keyboard without materially altering the parts, and when the coupler is out of action the keys are entirely free from the coupler. Consequently the touch of the
35 piano is not impaired.

A is the case of the piano.

B is the ordinary piano-action.

C are the keys, pivoted at *c* to a balance-rail
40 *a* on the key-frame secured to the keyboard *A'*. Each key *C* acts upon its abstract *b* of the piano-action, as clearly shown in Fig. 1, and the motion is transmitted through a series of levers to the hammer *b'*.

45 The action illustrated is one now in common use, and it will be understood that this portion of the piano may be modified without departing from my invention.

Pivoted at *d* to the front rail *A²* of the piano is a skeleton frame *D*, extending under the
50 keyboard nearly the full width of the piano

and extending back of the front bottom board *A³*.

The skeleton frame *D* is in the present instance of the form clearly illustrated in Fig. 4 and is arranged for a divided coupler, being wider at the back than at the front, and
55 has on its upper surface a balance-rail *D'*, covered with felt, and a rest-rail *D²*, also covered with felt, and on the balance-rail *D'* are mounted the coupling-levers *E*, which extend
60 from a point directly under the front of the keys diagonally to a point directly under the action of the octave above or below; but it will be understood that if the keys are coupled
65 in one direction only the shape of the skeleton frame will be modified, or if the bass and treble are divided then the frame is divided, as shown in Fig. 5.

Mounted in the keyboard *A'*, directly under the majority of the keys, are vertical pitmen
70 *e*. Each of these pitmen *e* has a pin which is adapted to a hole in the outer end of the coupling-lever *E*. When the coupling-levers are raised, any movement of the key *C* will be imparted to the lever *E*. Preferably
75 on the key is a felt disk *c*, and on the lever *E* is a felt disk *c'*, and the passage for the rod *e* has a felt bushing *a'*.

Supported by the opposite end of each lever *E* is a pitman *e²*. The pitmen *e²* are adapted
80 to openings *e³* in the levers, and regulating-screws *e⁴* are used as supports for the rods, so that by adjusting these screws the rods can be raised or lowered. This construction makes it possible to adjust each pitman in-
85 dependently.

Each pitman *e²* passes through the keyboard *A'*, the openings in which have a bushing of felt *a²*, and on the abstract *b* of the piano-action is a rear extension *b²*, having
90 felt on its under side, against which the pitman strikes when the coupler is in action, so that it will be seen that any motion imparted to the piano-action through the coupling-lever is entirely independent of the key
95 which would normally act upon that particular portion of the action.

F is a lifting-rail extending the full length of the skeleton frame *D* near the rear, as shown in Fig. 1 and by dotted lines in Fig. 3. 100

This rail is hinged at ff to blocks Λ^4 , secured to the sides of the case. Attached to the rail at the center is an arm f' , which is connected to the pedal G by a lifting-rod g . The lifting-rail is held normally out of action by the spring g' .

Passing through a lug in the pedal and into the frame is a regulating-screw g^2 , and between the head of the regulating-screw and the pedal is a felt washer. This screw regulates the forward throw of the lifting-rail F , so that by adjusting the screw the entire series of pitmen can be moved toward or from the piano-action, while the independent pitmen are regulated by the adjusting-screws e^4 on the levers E .

Secured to blocks Λ^5 on each side of the frame are flat springs i . These springs rest under the inner end of the skeleton frame D and carry the main weight of the frame, so that when the performer places his foot upon the pedal to throw in the coupler a very light pressure is all that is necessary, as the springs counteract the weight of the frame and its levers, as described.

The spring g' is comparatively light and is of sufficient tension to return the lifting-rail to its normal position.

One great difficulty in the manufacture of piano-key couplers has been the want of rigidity of the several parts without affecting the touch. Consequently numerous couplers have been made that have been more or less defective and reliance cannot be placed upon them.

By my invention the support for the coupling-levers is rigid, and when the foot is placed upon the pedal all parts are elevated alike and the lifting-bar F is moved to such a position as to form a rigid support for the frame without undue pressure of the foot.

It will be understood that when the piano has been arranged so that the entire coupling mechanism can be elevated so as to throw in both the bass and treble couplers the skeleton frame is made in one section, but when the bass and treble are to be operated independently then I make the skeleton frame as shown in Fig. 5 and use two pedals, and I prefer to so arrange the frames that the frame controlling the bass will overlap the frame controlling the treble, so that while the bass can be raised independently of the treble by placing the foot on the other pedal the treble and bass are raised in unison, as it is very seldom that the performer wishes to use the treble independently of the bass.

I claim as my invention—

1. The combination of the keys, the keyboard upon which the keys are mounted, a piano-action, a pivoted frame under said board, coupling-levers mounted on said frame, pitmen extending from each coupling-lever at each end, a longitudinal lifting-rail F pivoted to the frame of the piano and mounted under the pivoted frame, a pedal G connected to the lifting-rail, said rail being so pivoted

to the body of the piano that when it is moved to throw the coupling-levers into action the pivoted frame will be supported throughout the greater portion of its length by the body through the said longitudinal lifting-rail, substantially as described.

2. The combination of the case, the keys, keyboard on which the keys are mounted, piano-action, a frame pivoted to the case at its outer end and extending back of the front bottom board of the case and being wider at the back than at the front, a balance-rail on said frame, and a lifting-rail for elevating the frame, said lifting-rail extending nearly the full length of the frame, so as to firmly support it at both ends, substantially as described.

3. The combination of the keys, the keyboard, the pivoted frame made in two parts, one part overlapping the other, coupling-levers on said frame, pedals connected to each part so that one part can be elevated independently of the other and on the depression of the pedal on the other part both sections of the frame will be raised in unison, substantially as described.

4. The combination of the keys, keyboard, pivoted frame, coupling-levers thereon, springs for sustaining part of the weight of the frame and its levers, with means for elevating the frame to throw the coupling-levers into action, substantially as described.

5. The combination of the keys, the keyboard, a pivoted frame mounted under the keyboard and pivoted at the front end and extending back of the bottom front board, springs for sustaining a portion of the weight of the frame and its levers, a rail pivoted at each side of the piano and resting against the under side of the frame at the rear, an arm extending from the said rail, a pedal connected to said arm, with an adjusting-screw so as to regulate the throw of the lifting-rail and the upward movement of the frame, substantially as described.

6. The combination in a piano-key coupler, of the keys, the keyboard on which the keys are mounted, piano-action operated by the keys, a pivoted frame under the keyboard, coupling-levers mounted on the said frame, pitmen connecting the levers to the keys and pitmen connecting the levers to the piano-action, a set-screw under the latter so that they can be independently adjusted, a lifting-rail, a pedal connected to said lifting-rail, an adjustable stop to limit the movement of the pedal or lifting-rail so that either the entire coupling mechanism can be adjusted or the individual pitmen, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PHILIP WUEST, JR.

Witnesses:

WILL. A. BARR,
JOS. H. KLEIN.