(No Model.) 3 Sheets—Sheet 1.

O. A. KIMBALL & J. GRAMER.

PIANO.

No. 503,861. Patented Aug. 22, 1893.

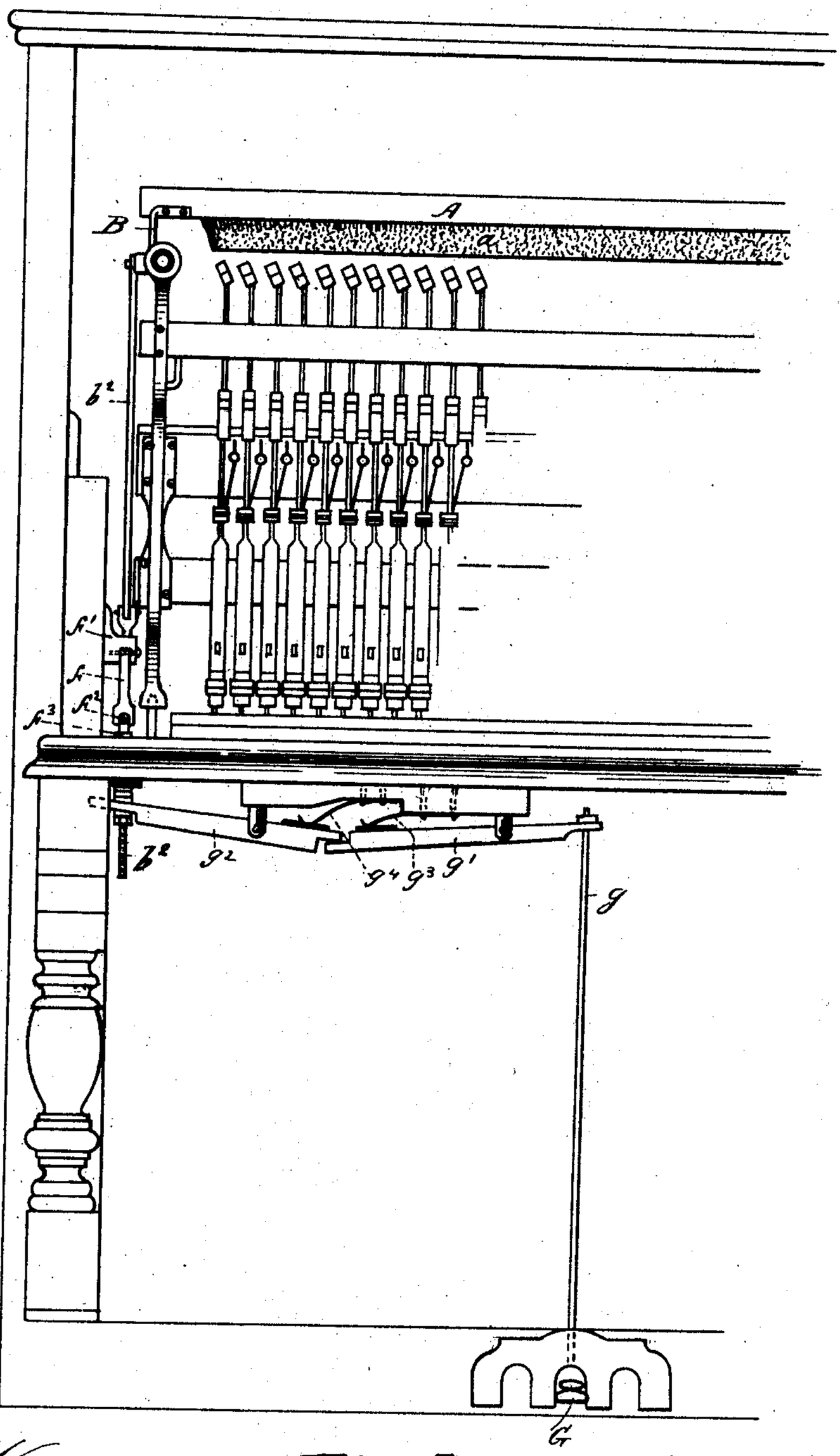

Fig. 1.

Witnesses,
John R. Snow.
H. E. Rennick Jr.

Inventors.
Orrin A. Kimball,
Joseph Gramer
by their attorneys,
Macrae & Bakewell.

(No Model.) 3 Sheets—Sheet 2.

O. A. KIMBALL & J. GRAMER.

PIANO.

No. 503,861. Patented Aug. 22, 1893.

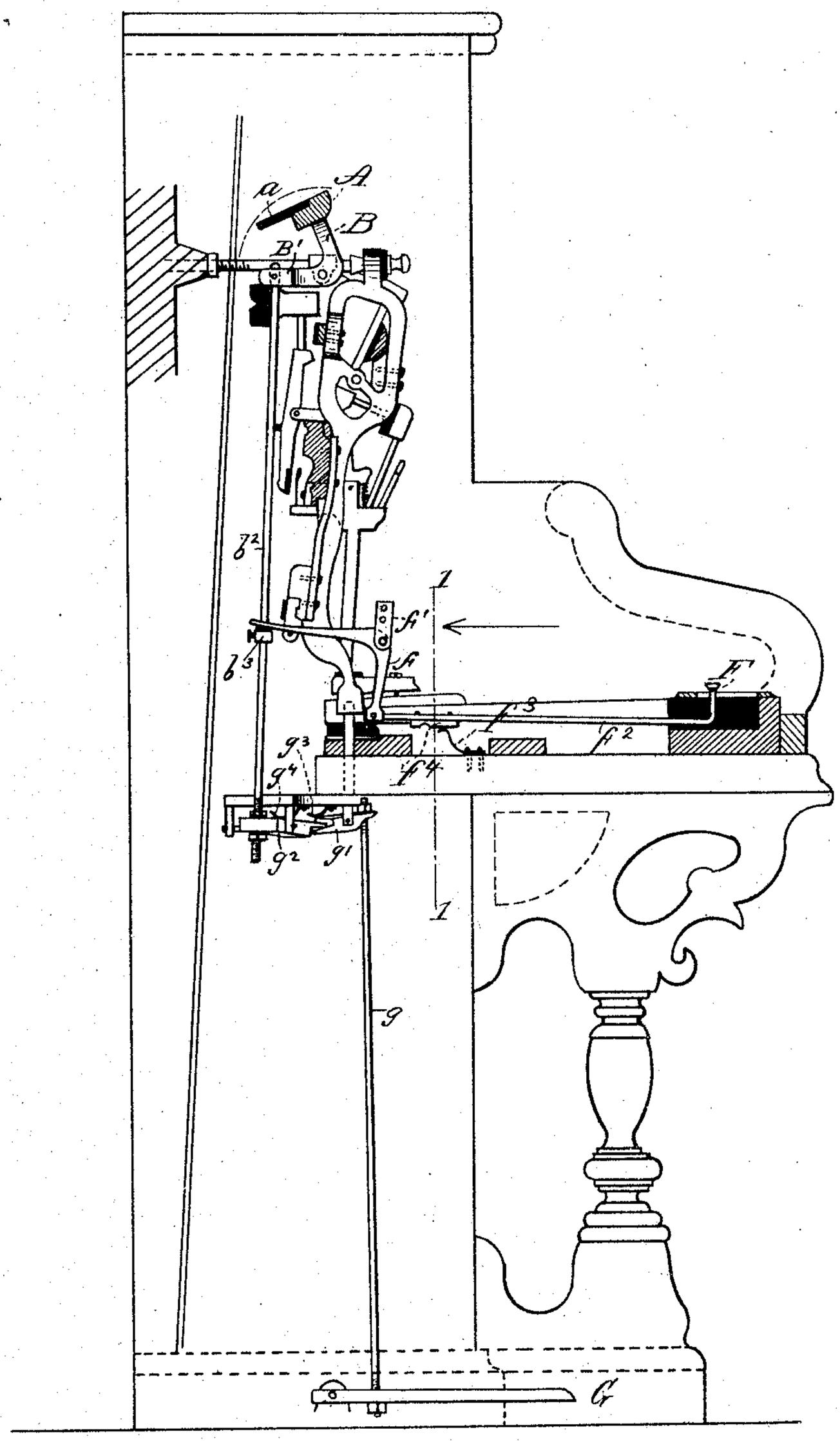

Fig. 2.

Witnesses.
John R. Brown.
H. E. Kennick Jr.

Inventors.
Orrin A. Kimball
Joseph Gramer
by their attorneys.
Mcguire & Black.

(No Model.) 3 Sheets—Sheet 3.

O. A. KIMBALL & J. GRAMER.

PIANO.

No. 503,861. Patented Aug. 22, 1893.

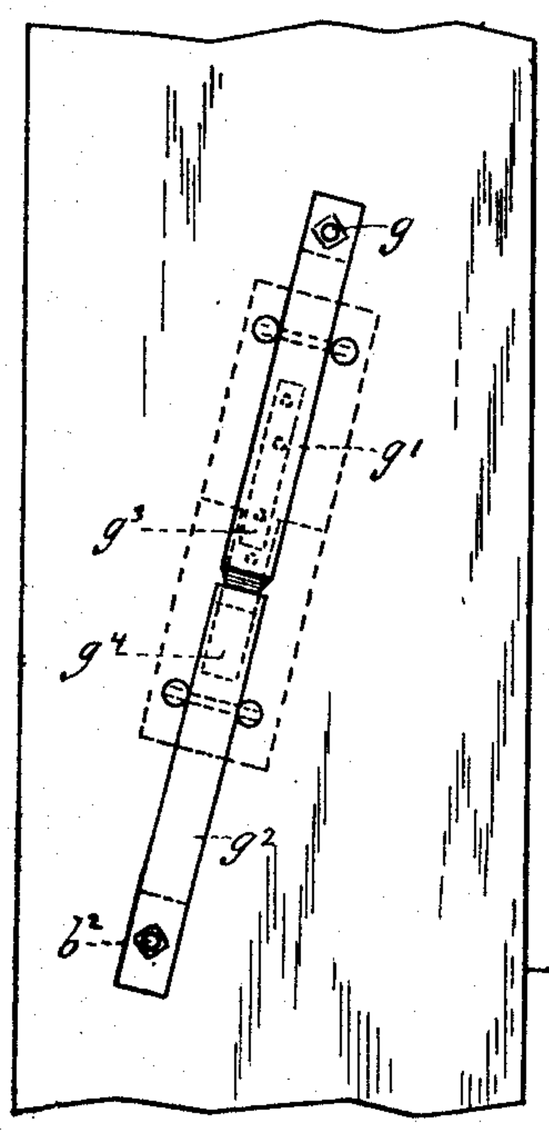

Fig. 6

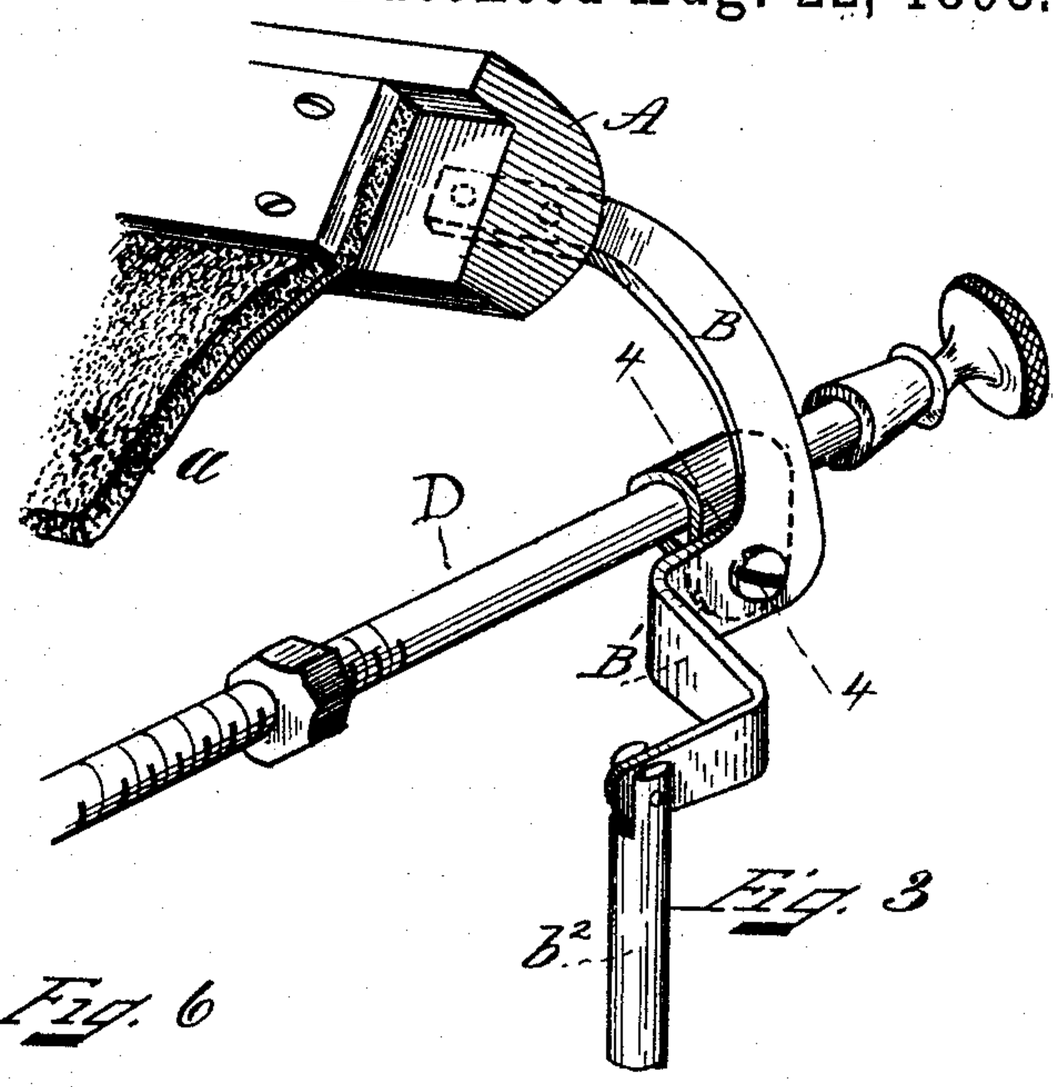

Fig. 3

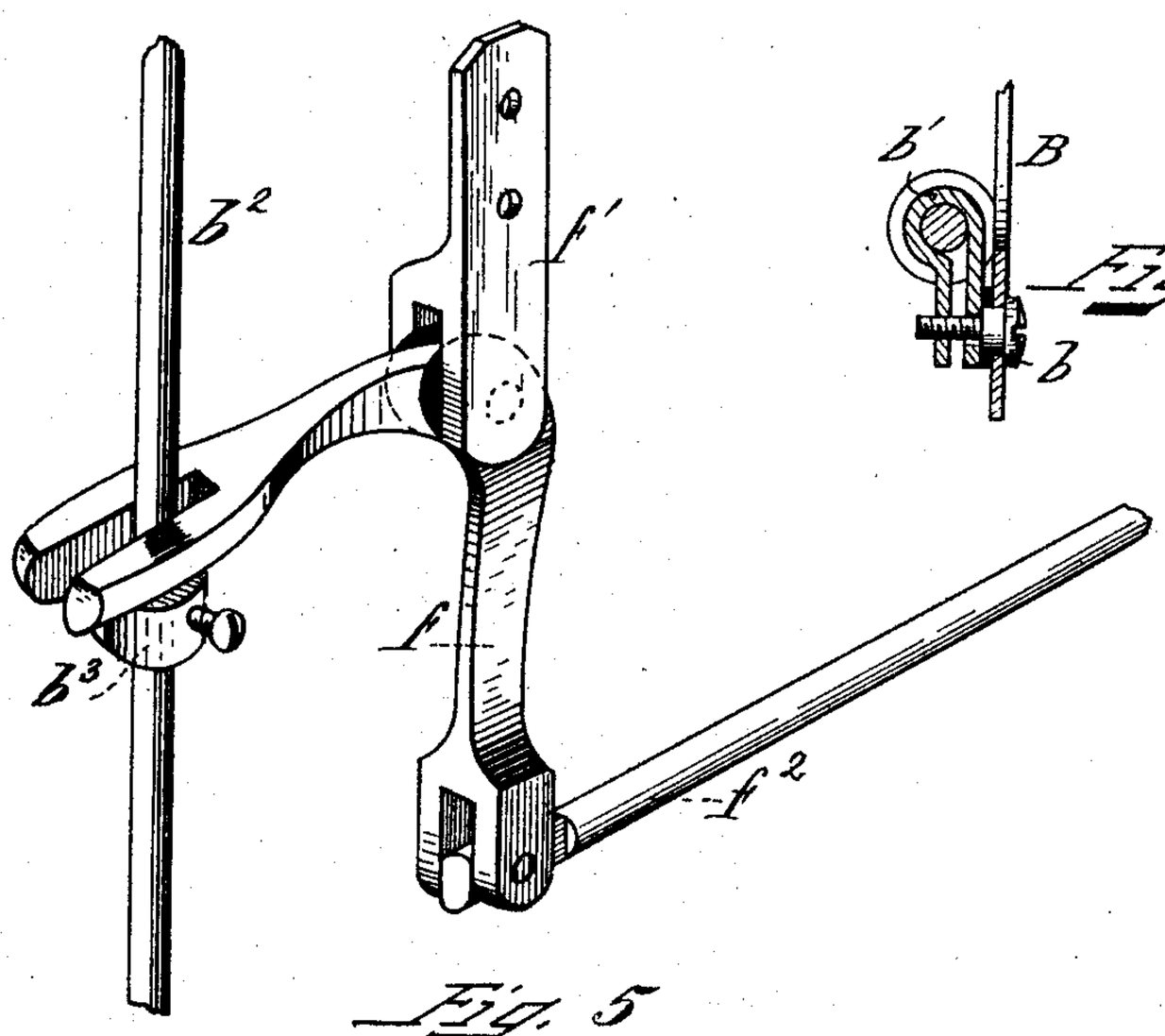

Fig. 5

Fig. 4

Witnesses.
John R. Snow.
H. E. Sewick Jr.

Inventors
Orrin A. Kimball
Joseph Gramer
by their attorneys,
Mackaye & Bloch.

UNITED STATES PATENT OFFICE.

ORRIN A. KIMBALL AND JOSEPH GRAMER, OF BOSTON, MASSACHUSETTS.

PIANO.

SPECIFICATION forming part of Letters Patent No. 503,861, dated August 22, 1893.

Application filed March 21, 1892. Serial No. 425,696. (No model.)

To all whom it may concern:

Be it known that we, ORRIN A. KIMBALL and JOSEPH GRAMER, both of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Pianos, of which the following is a specification, reference being had to the accompanying drawings, making a part hereof, in which—

Figure 1 is a front elevation of a portion of a piano with our soft stop applied. Fig. 2 is a side elevation with a portion of the case removed in order to show our soft stop. Fig. 3 is a detail in perspective showing one end of the soft stop rail and the means for attaching it to one of the action bolts. Fig. 4 is a section on line 4—4 of Fig. 3. Fig. 5 is a detail showing the connection of the hand lever with the hand rod of the soft stop. Fig. 6 is a detail of the under side of the key board showing the levers through which the soft stop pedal is connected to the draw rod of the soft stop.

Our invention relates to the soft stops for pianos, which consists of a rail carrying a felt curtain, and so mounted that the curtain can be brought between the hammers and strings, and thereby muffle the sound. This soft stop is used for two purposes, namely, while practicing to simply muffle the sound, and while performing in order to produce certain effects which cannot be produced otherwise; and one feature of our invention is an improved mechanism which gives the performer full control of the soft stop.

Another feature of our invention relates to mounting the stop rail; and consists in connecting it to the action bolts by clamping straps, and rocker arms, one of which is connected to the draw rod so that endwise motion of the draw rod will cause the rocker arms to rock on pivots carried by the clamping straps thereby swinging the soft stop rail into position to bring its curtain between the hammers and strings, or into position where the soft stop is out of operation.

In the drawings, A is the soft stop rail, and a its curtain; B rocker arms, carrying the soft stop rail A, and pivoted by pivots b to the clamping straps b', which are clamped upon the action bolts D, these action bolts being common in pianos and needing no further description. There are usually three or more of them, and therefore we use three rocker arms B, two without the arm B′; and the third with an arm B′ to connect with the draw rod b^2. This draw rod b^2 is under control of the lever f (as most clearly shown in Fig. 5), whose fulcrum is supported by a bracket f' fast to the case (see Fig. 1). The rod f^2 is fast to hand piece F, so that when hand piece F is pulled toward the player lever f is moved on its fulcrum, and its forked end engages with a collar b^3 on draw rod b^2, and pulls that rod downward, and causing the soft stop rail and all the rocker arms B to swing on pivots b, and carry curtain a between the hammers and the strings. The spring f^3 and stop f^4 serve to hold rod f^2 in place, until the hand piece F is moved. The draw rod b^2 is also under control of the soft stop pedal G by means of the pedal rod g, and the levers g' g^2, clearly shown in Fig. 1. Lever g' is moved when the pedal G is depressed, and moves lever g^2, which pulls down draw rod b^2, and applies the soft stop as before explained. But as soon as the foot is removed from pedal G, the springs g^3 g^4 carry their levers g' g^2 and rod g and pedal G back to place, thereby moving draw rod b^2 upward and carrying the soft stop out of operation, if it be not held in operation by the hand piece F; but in that case lever g^2 will be depressed at its left end, and raised against its spring g^4 at its right end; and spring g^3 will act through lever g' and rod g to hold pedal G in its normal position. When hand piece F is moved back, thereby carrying the forked end of lever f away from collar b^3, draw rod b^2 is moved upward by spring g^4 and lever g^2.

When practicing, hand piece F will be pulled forward, thereby applying the soft stop and keeping it applied, and also moving and holding lever g^2 against its spring g^4; but not affecting lever g'. In this case, pedal G is, of course, out of use; but when performing, the hand piece F is thrown forward and draw-rod b^2 released from control of lever f, whereupon lever g^2 actuated by spring g^4, moves draw rod b^2 upward and throws the soft stop out of action; and the soft stop is brought into action as occasion requires by

the pedal G, a depression of pedal G bringing it into action; and removing the foot from the pedal throwing it out of action.

What we claim as our invention is—

1. In combination, a soft stop rail; action bolts; rocker arms pivoted upon the action bolts; and connections for operating the rocker arms substantially as described.

2. In combination, soft stop rail, A; rocker-arms B secured to the rail; lever, g^2; rod, b^2; connecting one of the rocker-arms to the lever g^2; a spring acting upon lever g^2 to elevate the rod b^2; lever g' loosely connected with the lever g^2; spring g^3 to depress the lever g'; pedal G; and connections between the pedal and the lever g' substantially as and for the purposes set forth.

3. In combination a soft stop rail, rocker arms fast to it, clamping straps adapted to be clamped on the action bolts, and pivots connecting the rocker arms with the clamping straps, all substantially as described.

ORRIN A. KIMBALL.
JOSEPH GRAMER.

Witnesses:
GEO. R. SNEADEN,
ROSA SAWYER.