

(No Model.)

P. GMEHLIN.  
KEY FRAME FOR PIANO FORTES.

No. 356,759.

Patented Feb. 1, 1887.

Fig: 1

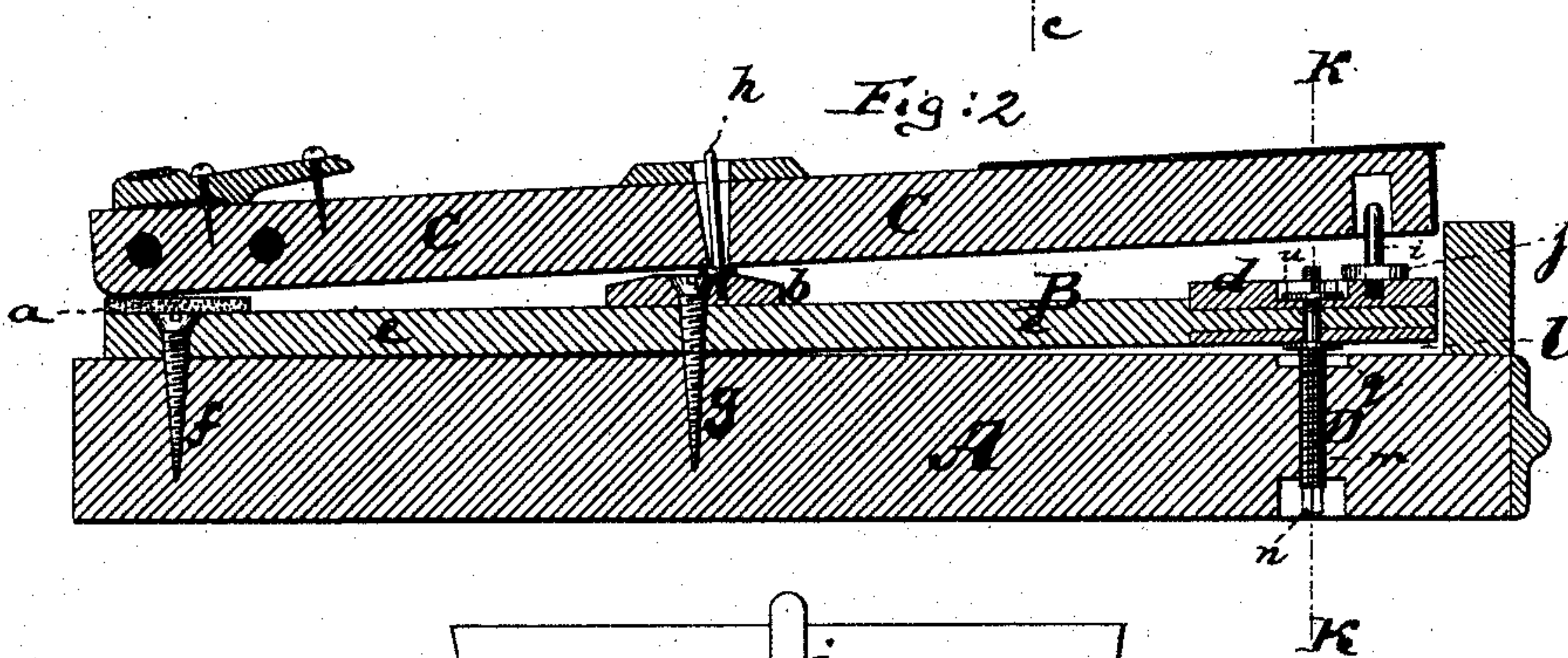
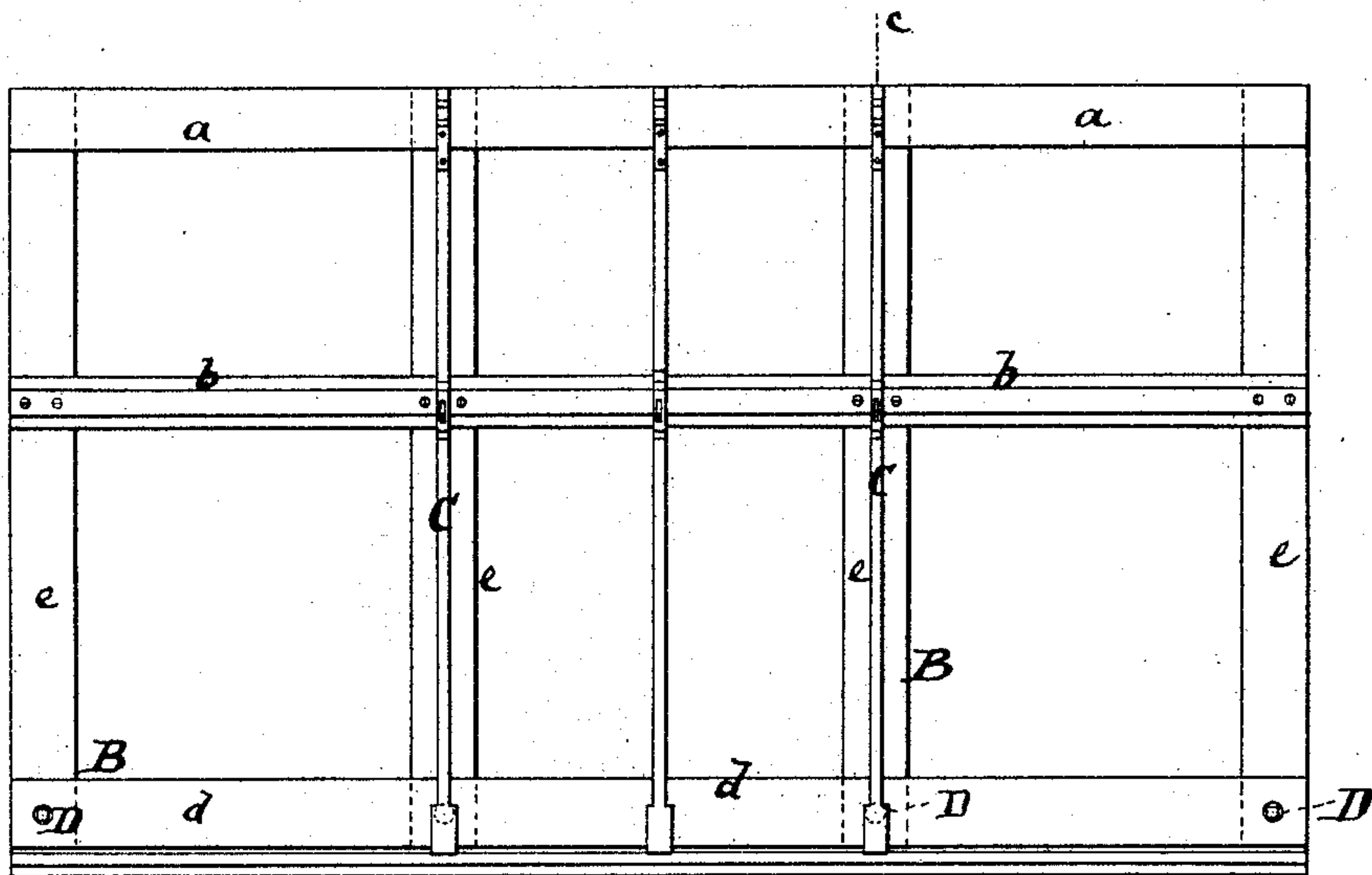


Fig: 3

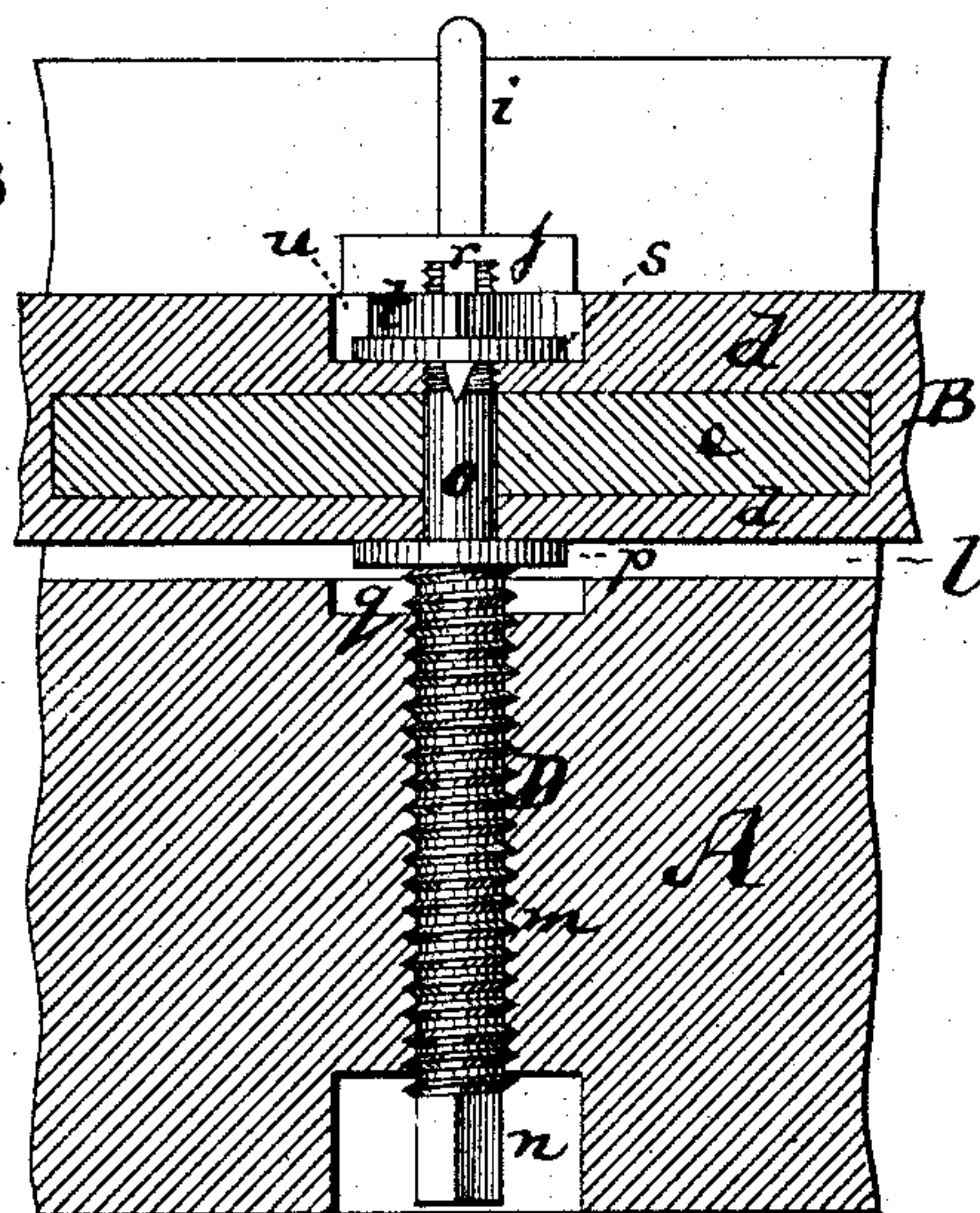


Fig: 4



WITNESSES:

John M. Speer.  
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INVENTOR

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# UNITED STATES PATENT OFFICE.

PAUL GMEHLIN, OF NEW YORK, N. Y.

## KEY-FRAME FOR PIANO-FORTES.

SPECIFICATION forming part of Letters Patent No. 356,759, dated February 1, 1887.

Application filed September 22, 1886. Serial No. 214,216. (No model.)

*To all whom it may concern:*

Be it known that I, PAUL GMEHLIN, a resident of New York city, in the county and State of New York, have invented an Improvement in Key-Frames for Piano-Fortes, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings, in which—

Figure 1 is a top view of a key-frame of my invention. Fig. 2 is a vertical cross-section on an enlarged scale, the line *c c*, Fig. 1, indicating the plane of section. Fig. 3 is a section on the line *k k*, Fig. 2, said figure being on a still larger scale than Fig. 2. Fig. 4 is an end view of the screw which regulates the position of the key-frame.

The object of this invention is to so construct the key-frame and its connections that the touch of the keys can be regulated at will, and so, also, that any shrinkage of the key-frame or key-bottom can be promptly and conveniently counteracted.

The invention consists, principally, in combining a separate key-frame with a supporting key-bottom and with a special screw, or rather set of screws, for drawing the key-frame into any desired position, as hereinafter described.

In the drawings, the letter A represents the key-bottom of a piano-forte, which is usually, or for the purposes of this invention may be, a solid bottom of wood.

B is the key-frame, which is composed of the back rail, *a*, balance-rail, *b*, and front rail, *d*, and of the cross-pieces *e e*. This key-frame B is at its back portion, by strong screws or fasteners *f*, secured to the back portion of the key-bottom. Screws *g* may also serve to secure the key-frame, the balance-rail *b*, and the key-bottom A together.

C is one of the keys of a piano, and *h* the pin on the balance-rail, which serves as a pivotal connection for said key. The front rail, *d*, of the frame B carries the front key-pin, *i*, and a series of puncheons, *j*.

In the drawings, particularly in Fig. 2, an open space will be observed at *l* between the lower face of the front portion of the key-frame B and the upper face of the key-bottom A.

This open space is left there for the purpose of enabling a set of screws, D D, to regulate

the elevation of the front part of the key-frame B, and thereby the height of the puncheons *j* simultaneously—that is to say, the higher these puncheons are placed the shorter will be the stroke of each key C. The screws D are placed, by preference, in the front portions of the cross-pieces *e* of the key-frame, so that where the key-frame has four such cross-pieces it will have four such screws, D. Each of these screws D has a threaded shank, *m*, which engages with the wood-work of the key-bottom A, as in Fig. 3. The lower end of the screw D is squared, as at *n*, or otherwise constructed to be readily gripped by a wrench or a screw-driver. Thus the screw D is turned from below to regulate the extent to which its upper portion projects above the key-bottom A.

Above the threaded portion *m* the screw D has a smooth shank, *o*, which traverses the main part of the key-frame B. A loose washer, *p*, rests on the threaded portion *m* and serves as a support for the lower side of the key-frame B. A recess, *q*, is cut into the upper face of the key-bottom A, for receiving the washer *p* whenever the key-frame is drawn down as far as possible. The uppermost end of the screw D is squared, as at *r*, and threaded at its corners. Upon this squared portion *r* is fitted a washer, *s*, having a square hole, so that it cannot turn on the screw, and over this washer is placed a nut, *t*, which engages the threaded corners of the squared portion *r* of the screw. Inasmuch as the washer *s* cannot revolve on the screw, it is not liable to jar the nut *t* loose. For the reception of the washer and nut *s t* a recess, *u*, is formed in the upper face of the key-frame B.

In case the key-bottom by warping should spring the key-frame out of shape, and thereby vary the space *l* or the height of the puncheons *j*, it is only necessary to turn the screws D D and set the puncheons back to the desired height.

The player can also by the use of this invention give to the keys of his instrument a greater or less degree of motion by adjusting the puncheons *j* to the desired height.

I am aware that adjustable puncheons are old; but they are impracticable, as each has to be adjusted by itself, which renders it impos-

sible to secure a uniform touch for a set of keys, and also that a screw has been used for adjusting the balance-rail.

I claim—

5 1. In a piano, the combination of the key-bottom A with the key-frame B, secured at one end to said key-bottom, and regulating-screws D, bearing against the other end of said key-frame, all arranged for leaving a space,  
10 *l*, between the front portion of the key-bottom and key-frame, as specified.

2. The combination of the key-bottom A, and key-frame B, carrying a series of puncheons,

*j*, with the regulating-screws D, bearing against the front portion of the key-frame for simulta- 15  
neously adjusting said puncheons, as specified.

3. The screw D, having wrench-head *n* at lower part, threaded portion *m*, smooth portion *o*, and squared and threaded upper portion, *r*, in combination with the washers *p s* 20  
and nut *t*, for use on the key-bottom A and key-frame B, as herein shown and described.

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Witnesses:

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