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(No Model.)

C. BRAMBACH.  
KEY BOTTOM FOR PIANOS.

No. 414,488.

Patented Nov. 5, 1889.

fig. 1.

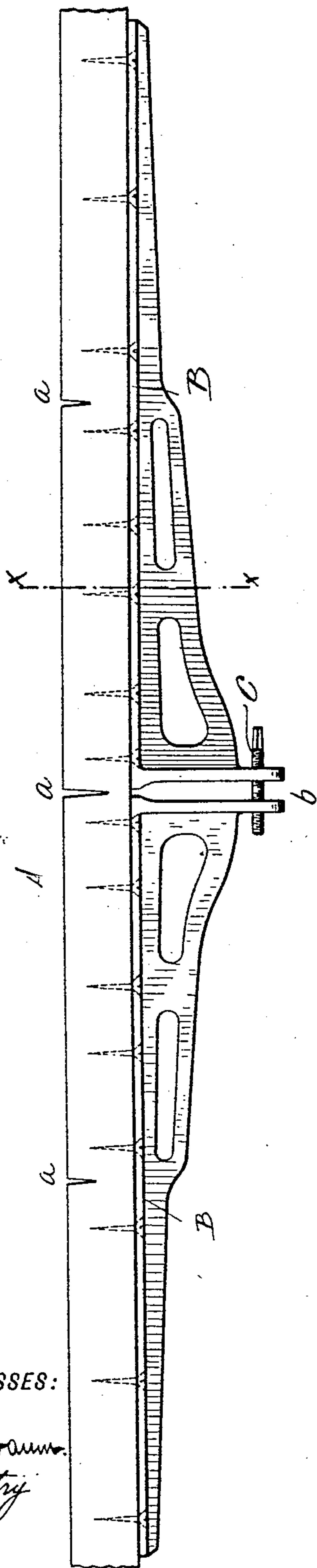


fig. 3.

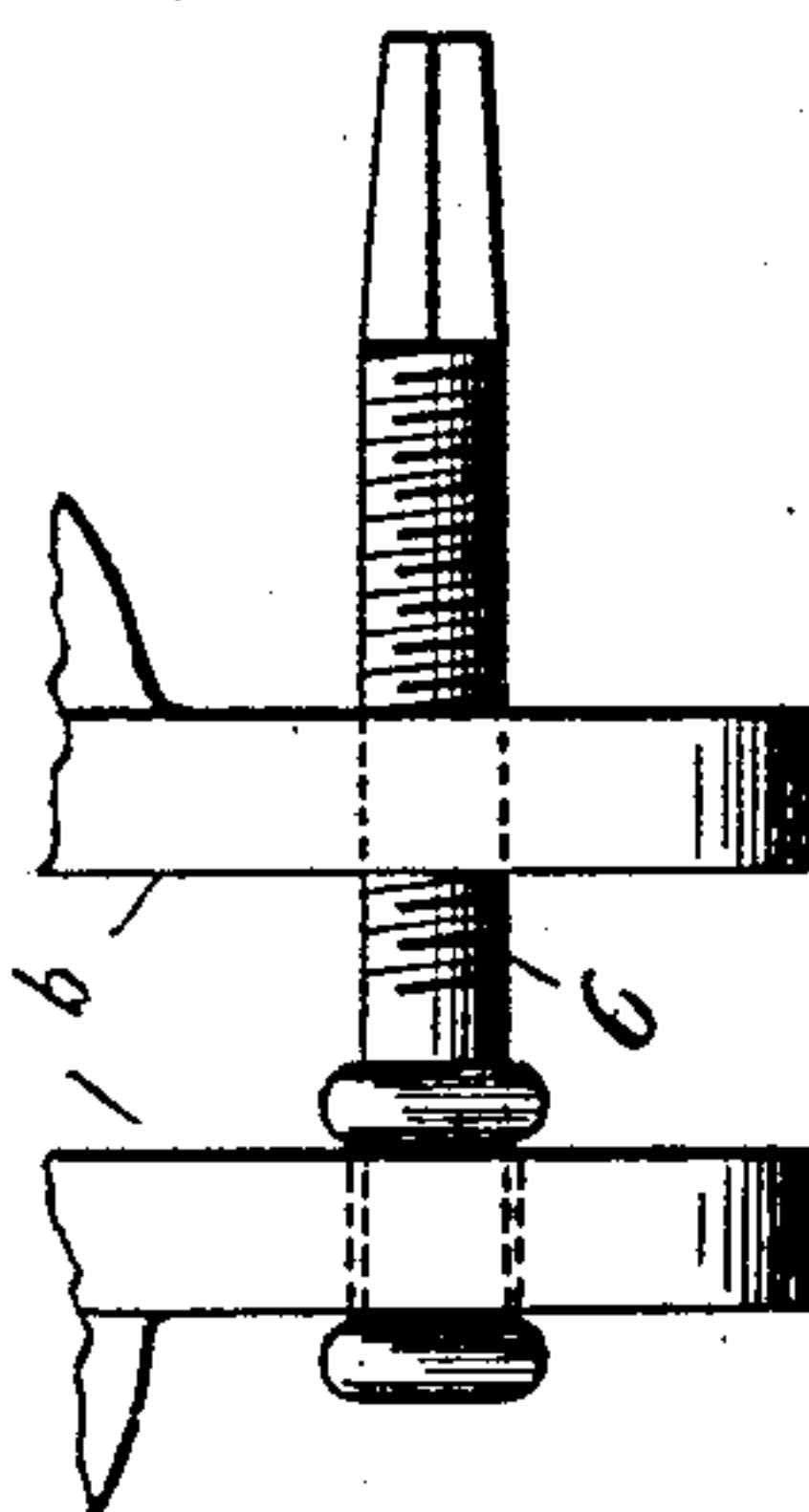


fig. 2.

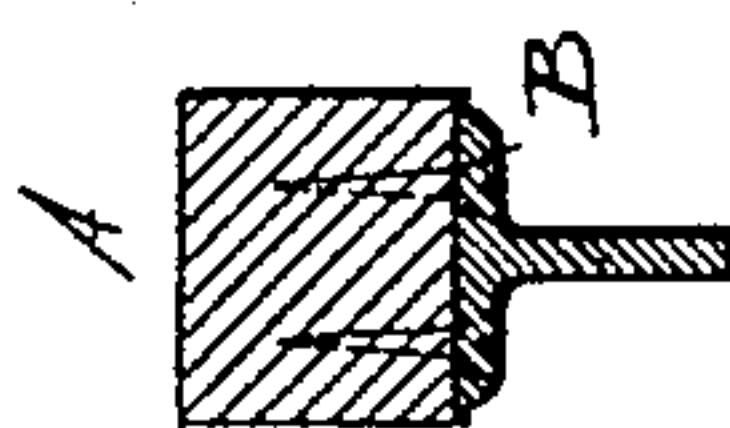
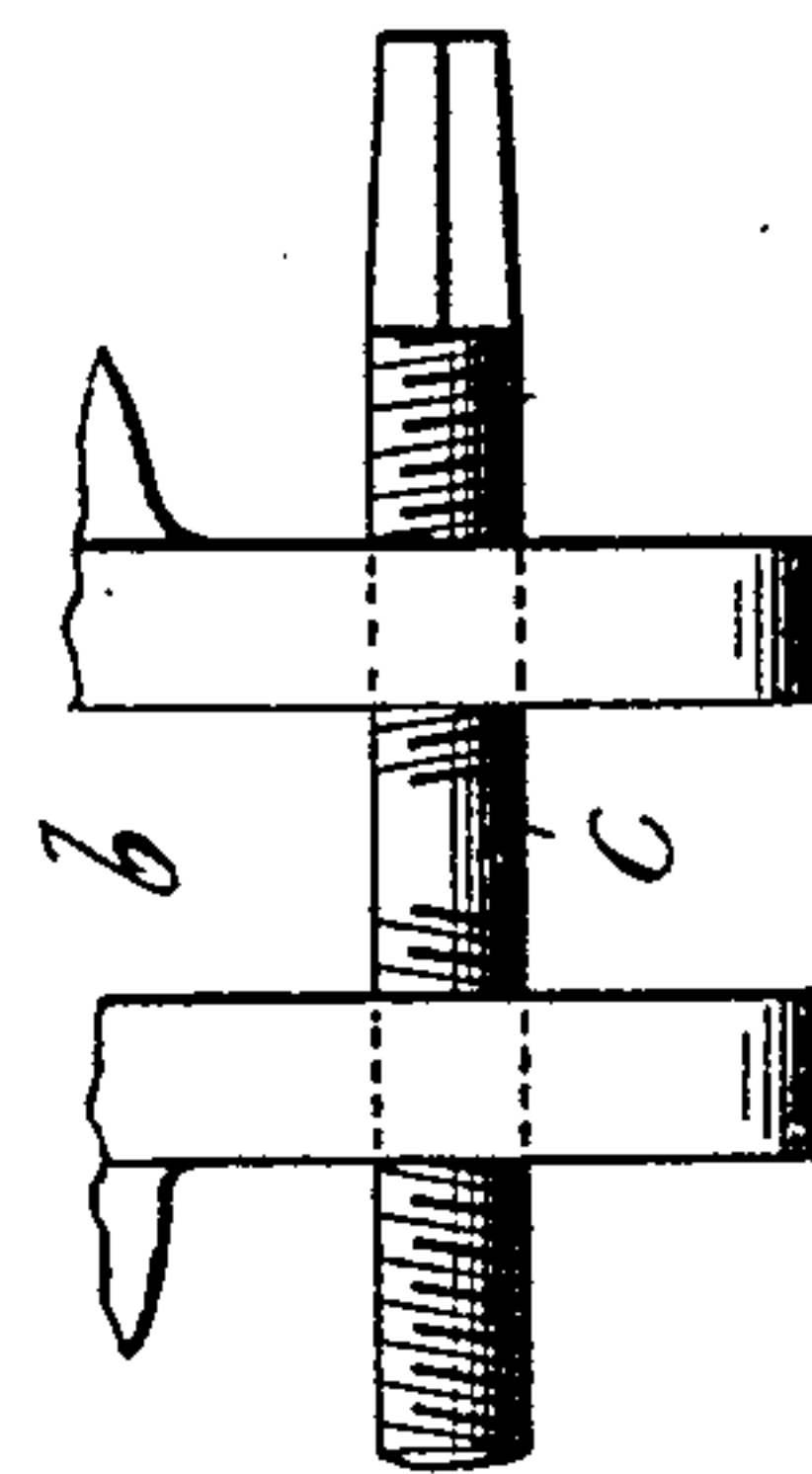


fig. 1a.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## KEY-BOTTOM FOR PIANOS.

SPECIFICATION forming part of Letters Patent No. 414,488, dated November 5, 1889.

Application filed May 11, 1889. Serial No. 310,409. (No model.)

*To all whom it may concern:*

Be it known that I, CARL BRAMBACH, of the city, county, and State of New York, a citizen of the United States, have invented certain new and useful Improvements in Key-Bottoms for Pianos, of which the following is a specification.

This invention relates to an improved key-bottom regulator by which the key-bottom can be readily set when the same is getting out of regulation by a change of atmosphere or any other cause, the regulating being accomplished with great facility and at a considerable saving of time and labor. My improved regulator is designed for the purpose of overcoming the warping of the key-bottom and for readjusting the keys either toward or away from the action, as may be required.

The invention consists of a key-bottom regulator consisting of a key-bottom having transverse slits at the center and at intermediate points, and of two longitudinal bracket-bars that are attached to the bottom of the keeper and connected at their inner surrounding parts by a right-and-left-hand screw, so as to be adjusted relatively to each other as required by the proper adjustment of the keys.

In the accompanying drawings, Figure 1 represents a front elevation of a key-bottom with my improved regulating device. Fig. 1<sup>a</sup> is an enlarged detail view of the adjusting-screw. Fig. 2 is a vertical transverse section of the same on the line *xx*, Fig. 1; and Fig. 3 is a modified construction of an adjusting-screw for the bracket-bars of the key-bottom.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the key-bottom, which is provided at the center and at one or more intermediate points between the center and ends with transverse slits or notches *a*, which extend from the upper edge in downward direction, the center of the slit *a* being of greater depth than the intermediate slits, as shown in Fig. 1. The key-bottom is supported on two independent longitudinal bracket-bars B, which are screwed

to the under side of the key-bottom and located below the recess at the rear ends of the key-levers. The inner ends of the bracket-bars B are each provided with a downwardly-extending flange *b*, which are connected by a right-and-left-hand screw C, having a square head for the tuning-hammer. In place of the right-and-left-hand screw, any other adjusting-screw may be used, as shown in Fig. 3, in which case one end of the screw must be mounted in the flange *b* of one of the bracket-bars, while the threaded shank of the screw engages the flange of the other bracket-bar.

When the key-bottom has warped upward or downward for some reason or other, so that the key-levers change their relative positions to the action, the proper position of the key-bottom is restored by turning the right-and-left-hand connecting-screw C with the tuning-hammer, whereby the key-bottom is lifted and the keys adjusted. The effect of the adjustment of the screw C is greatest at the center and smallest at the ends of the key-bottom, which corresponds to the usual warping of the key-bottom.

The slits in the key-bottom may be dispensed with; but in this case the regulating-bars have to be of greater thickness, so as to produce the adjustment of the key-bottom; but I prefer the use of slits, as the regulating of the key-bottom is thereby facilitated. The key-board regulator has therefore twofold purposes—first, supporting the key-bottom and keys in proper position, and, secondly, for adjusting the warp in the bottom, which is accomplished by considerable saving in time and labor by a simple application of the tuning-hammer without requiring a skilled action-regulator. The regulator is specially adapted for use with upright pianos, as in this case the key-bottom is free without any intermediate supporting devices.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a key-bottom, of longitudinal bracket-bars and regulating-screws for connecting the inner adjoining ends of said bars for regulating the position of the key-bottom, substantially as set forth.



2. The combination, with a key-bottom having one or more transverse slits or notches, of longitudinal bracket-bars attached to the under side of the key-bottom, and a right-and-  
5 left-hand screw connecting the inner ends of the bracket-bars for regulating the key-bottom, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CARL BRAMBACH.

Witnesses:

MARTIN PETRY,  
A. R. ANGUS.