

(No Model.)

2 Sheets—Sheet 1.

P. T. B. BERNER.

PIANO TUNING PIN.

No. 360,409.

Patented Apr. 5, 1887.

Fig. 1.

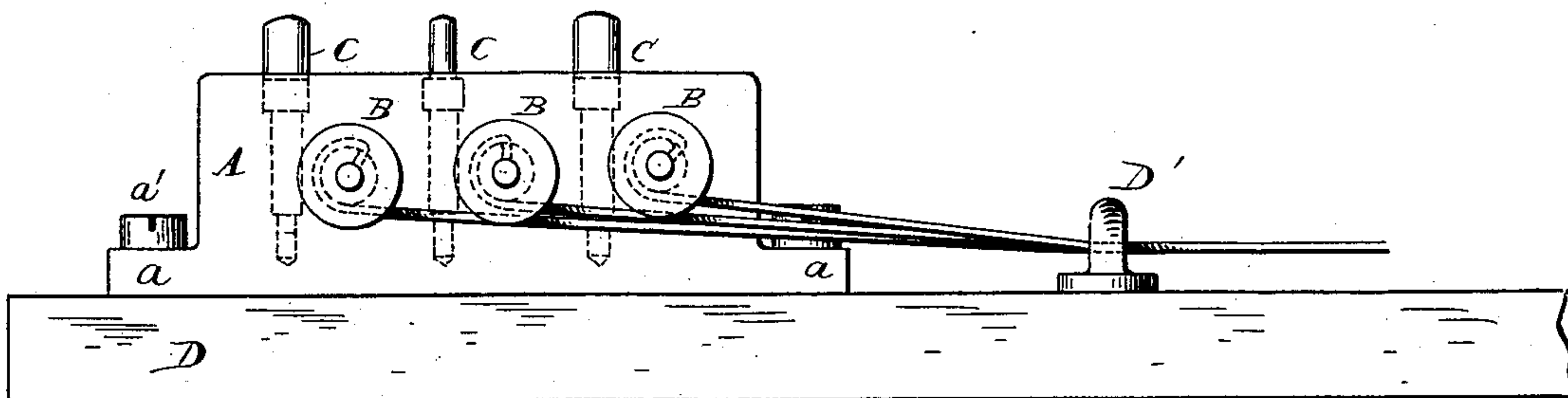


Fig. 2.

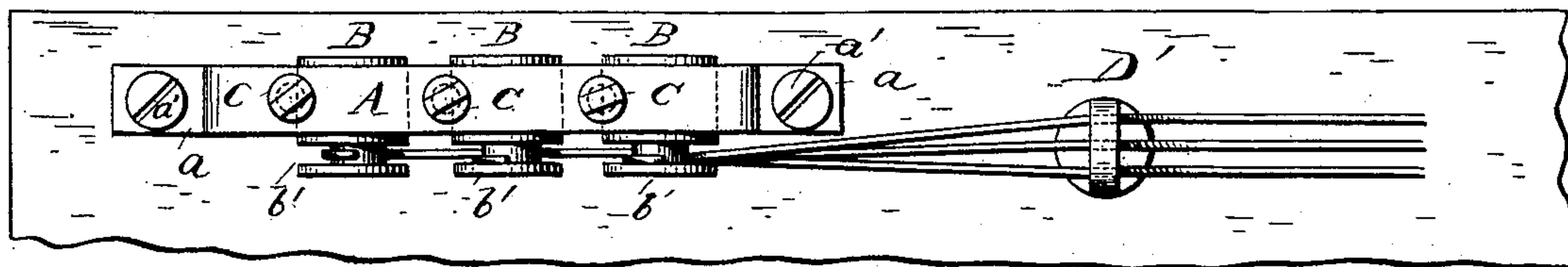
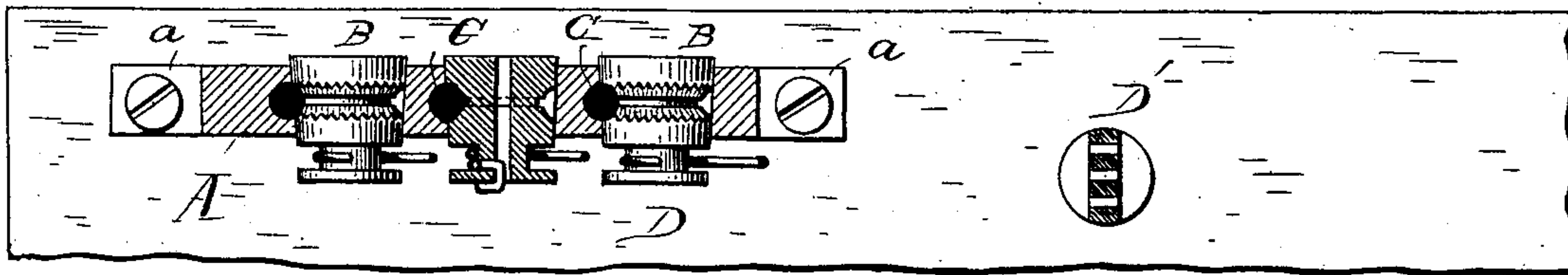


Fig. 3.



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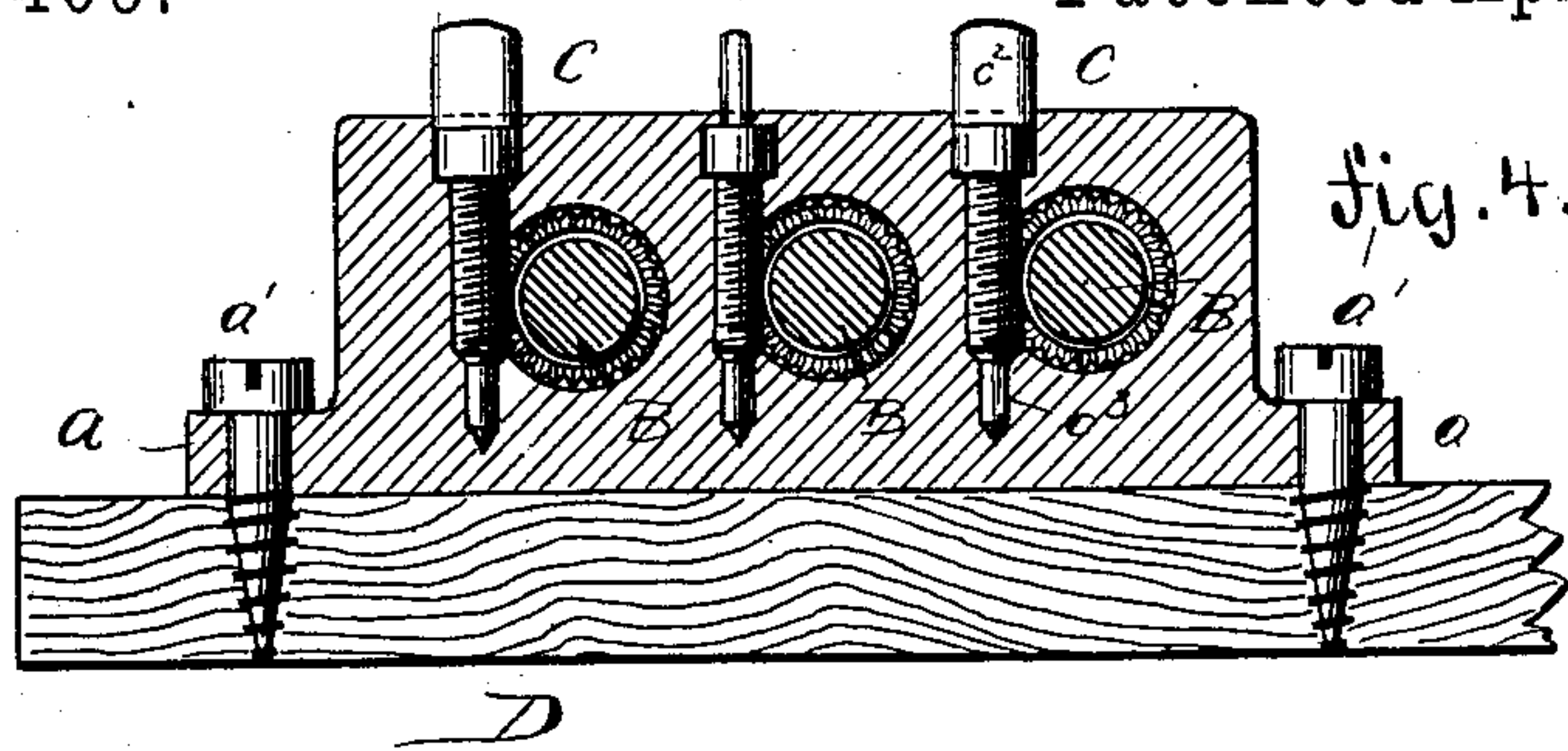


Fig. 4.

Fig. 7.

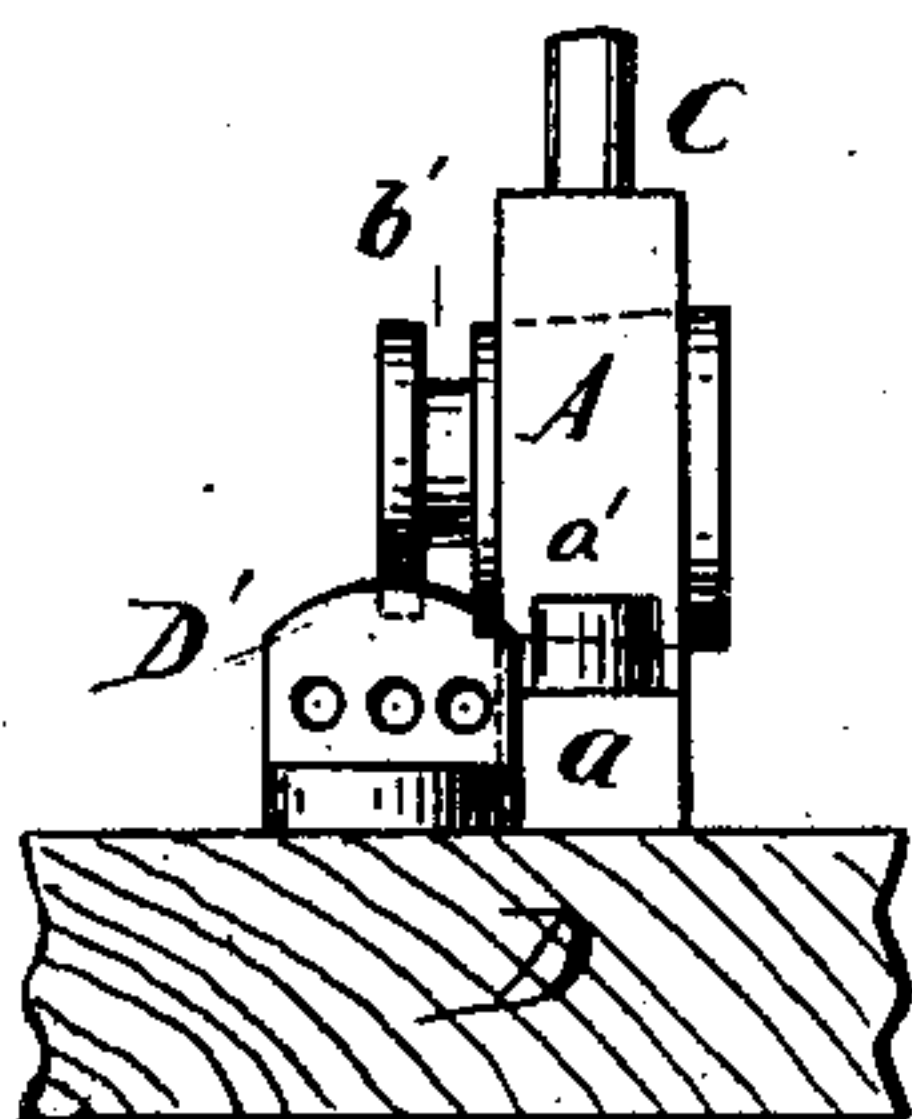


Fig. 5.

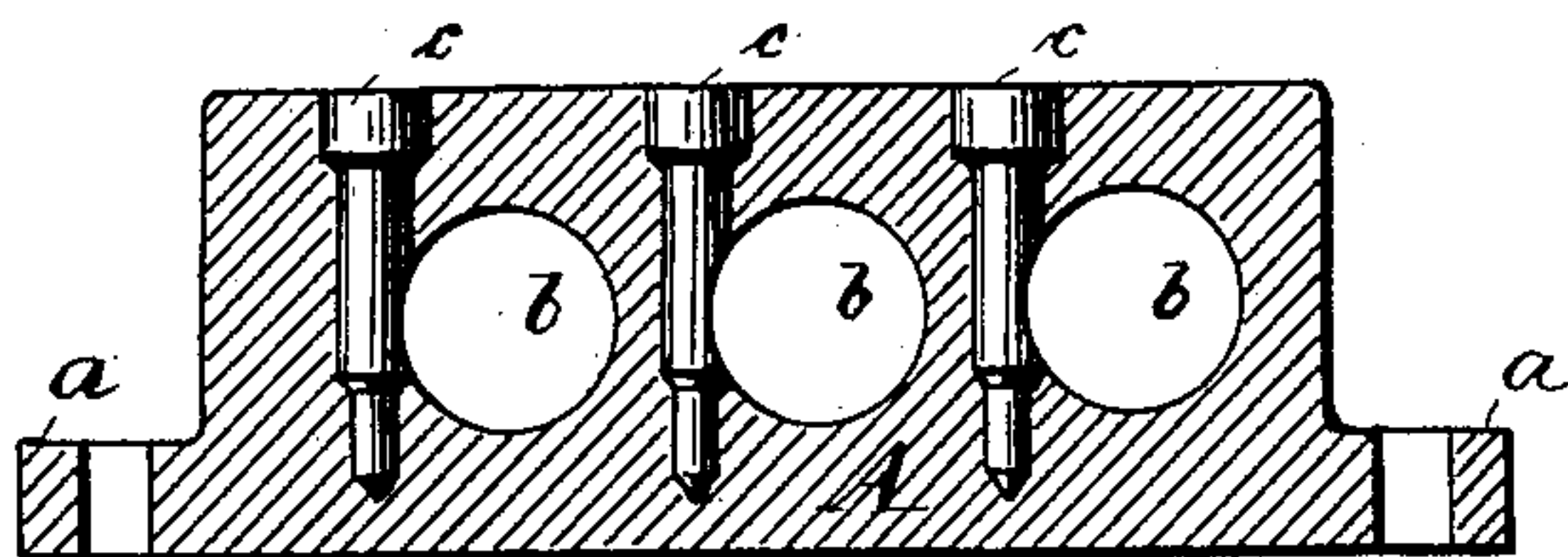


Fig. 8.

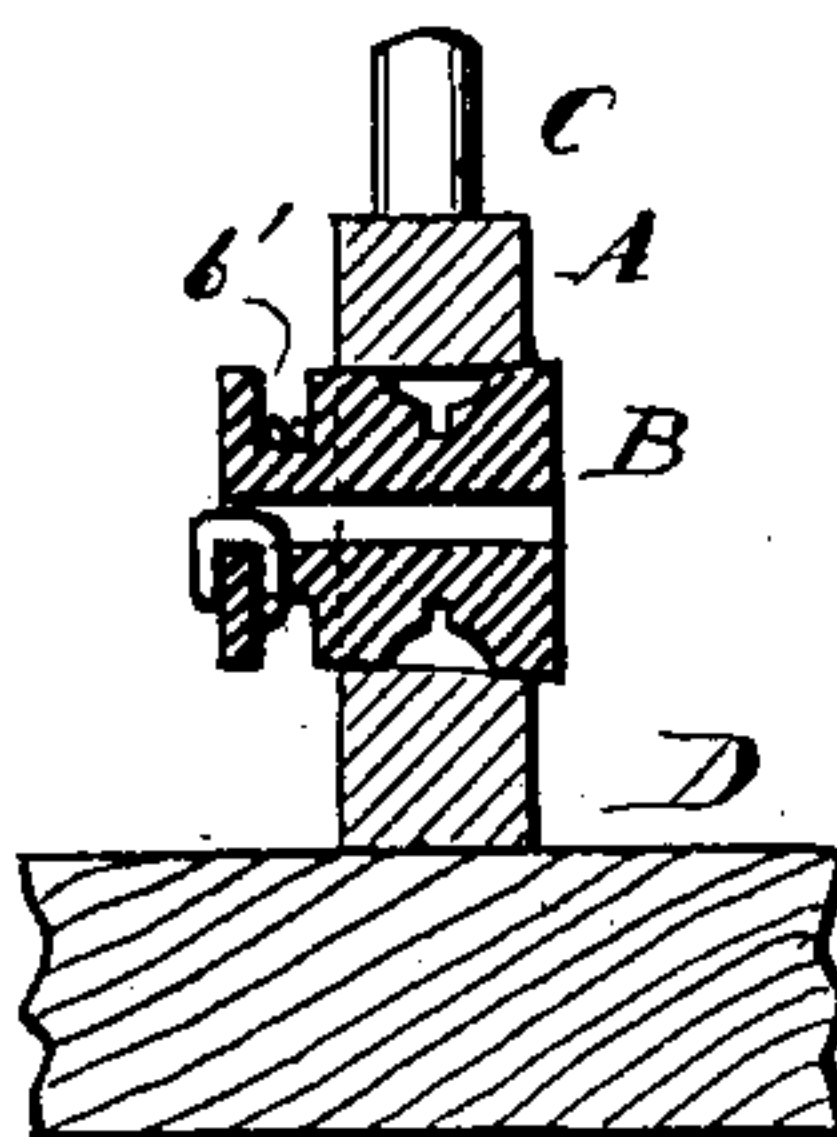


Fig. 9.

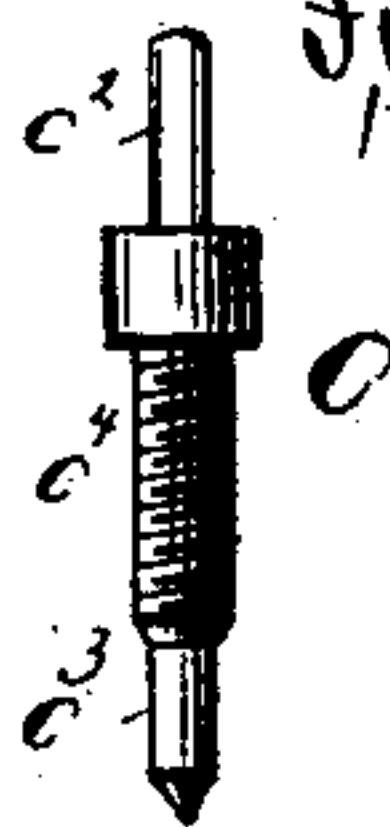


Fig. 6.

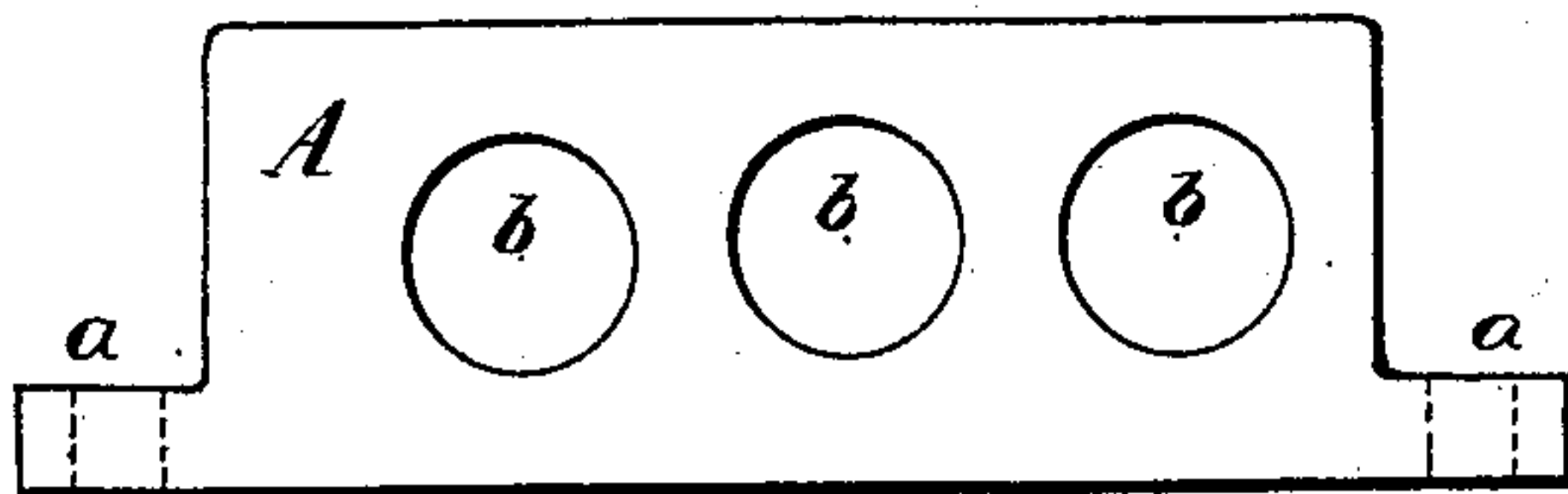
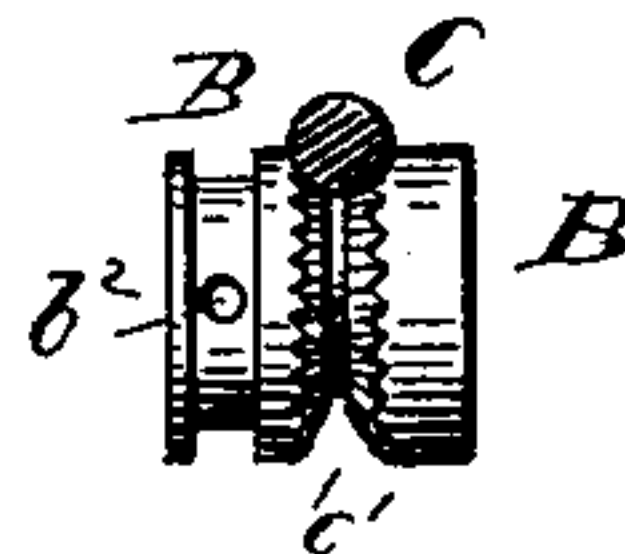


Fig. 10.



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UNITED STATES PATENT OFFICE.

PAUL THEOPHIL BALTHASAR BERNER, OF BERLIN, GERMANY.

PIANO TUNING-PIN.

SPECIFICATION forming part of Letters Patent No. 360,409, dated April 5, 1887.

Application filed May 12, 1886. Serial No. 201,924. (No model.)

To all whom it may concern:

Be it known that I, PAUL THEOPHIL BALTHASAR BERNER, of Berlin, in the Kingdom of Prussia, Empire of Germany, have invented
5 certain new and useful Improvements in Tuning Devices for Pianos, of which the following is a specification.

This invention relates to certain new and useful improvements in devices for turning
10 the pins to which the strings of a piano are secured; and the object of my invention is to provide a tuning device which is simple in construction, effective in use, and specially adapted where a number of strings are to be
15 tuned to the same pitch.

The invention consists in a suitable block or casing, worm-wheels in said casing engaging with screw-threads or worms formed on the tuning-pins, the strings being secured to projecting parts on the ends of the said worm-wheels, all as will be described and set forth hereinafter, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a longitudinal side view of my improved tuning device. Fig. 2 is a plan view of the same.
25 Fig. 3 is a sectional plan view of the same. Fig. 4 is a longitudinal sectional view of the same. Fig. 5 is a longitudinal sectional view of the block or casing in which the tuning-pins
30 are held. Fig. 6 is a side view of the same. Fig. 7 is an end view of the tuning device. Fig. 8 is a cross-sectional view on the line $z z$, Fig. 3. Fig. 9 is a longitudinal view of one of the tuning-pins. Fig. 10 is a plan view of
35 one of the rollers, the pin being shown in section.

Similar letters of reference indicate corresponding parts.

The block or casing A is provided with the
40 end lugs, a , through which the screws a' are passed into the frame D. The block or casing A is provided with one, two, or three circular apertures, b , for receiving rollers B, each of which is provided in its circumference
45 with a groove, c' , in which a worm-thread is cut, the worm-thread of each roller engaging with a screw-thread or worm, c'' , formed on the tuning-pin C, the tuning-pins each being provided below the screw with a narrow part,
50 c^3 , fitting into a suitable socket in the bottom part of vertical apertures c , extending from the top of the block or casing A downward.

The tuning-pins are each provided above the screw-thread or worm with a collar, and above the same with a square or polygonal
55 part, c^3 , for applying the tuning-key. Each roller B is provided at one end with a laterally-projecting part, b' , flanged at its outer end, and provided with an aperture, b^2 , for receiving the end of the string, the several
60 strings being passed through the agraffe D' on the frame of plate D. Two or three rollers are provided in each block or casing A, according to the number of strings that are to be tuned to the same pitch. That roller B near
65 est the agraffe D' is preferably raised, as indicated in Fig. 1, so that the strings secured to the following rollers cannot come in contact with the wedge of the first roller B. The tuning-pins C have bearings at their upper and
70 lower ends, so that they can be turned without binding, and do not offer any undue resistance.

When the tuning-pins are turned by means of a tuning-key of the usual construction, the
75 rollers B are also turned by the worm-thread, and the strings are either wound upon the projecting parts of said rollers or unwound from the same. The strings are all held firmly and securely, as the rollers cannot revolve the tuning-pins.
80

The above-described device can be applied to any piano without requiring any change in the construction of the same.

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

In a tuning device for pianos, the combination, with a block or casing having apertures
90 $b b$, the apertures b at one end of the casing being a greater distance above the bottom of the block than in the other end, of rollers in the said apertures, which rollers have worm-threaded grooves, and threaded pins engaging with the threads of the rollers, substantially
95 as shown and described.

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

PAUL THEOPHIL BALTHASAR BERNER.

Witnesses:

B. ROI,

H. SCHLOSS.