(No Model.)

A. FELLDIN.

PIANO TUNING APPARATUS.

No. 477,590. Patented June 21, 1892.

Fig. 1.

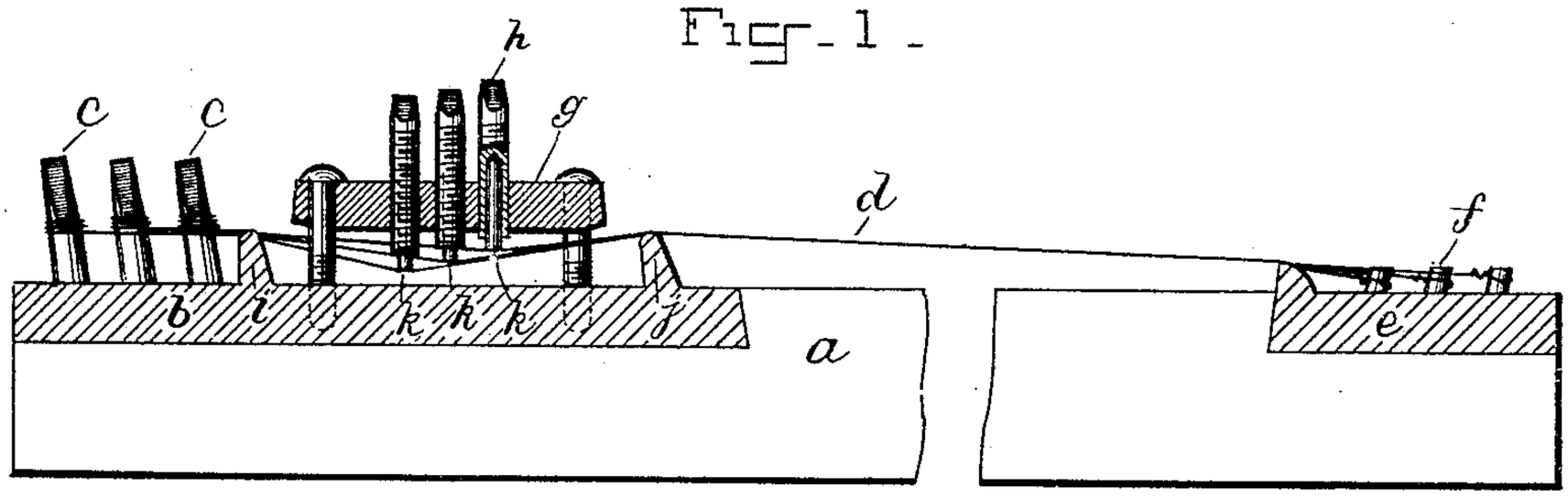


Fig. 4.

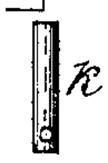
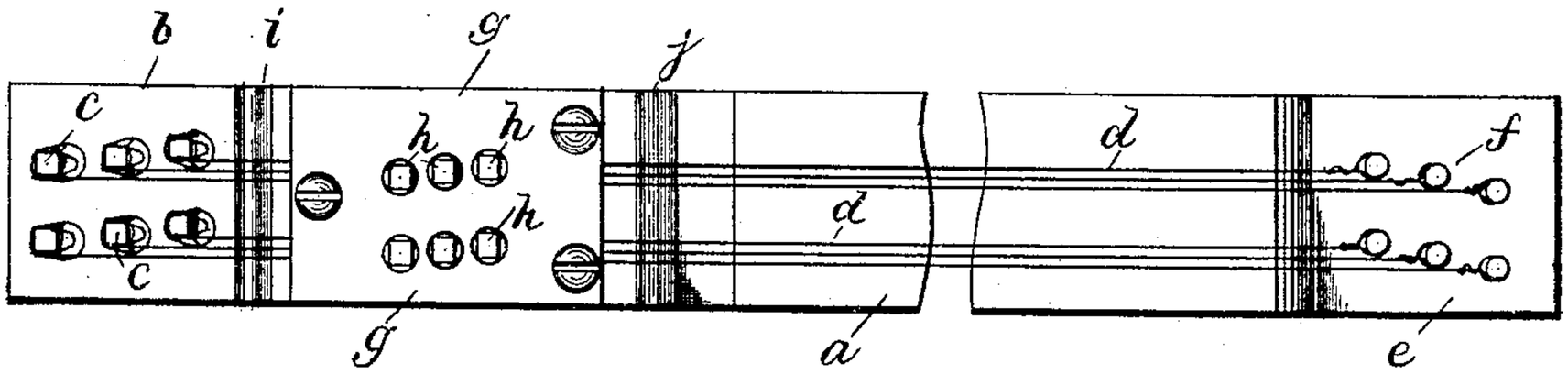


Fig. 3.

Fig. 5.

Fig. 2.



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UNITED STATES PATENT OFFICE.

ABRAHAM FELLDIN, OF AUBURN, NEW YORK.

PIANO-TUNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 477,590, dated June 21, 1892.

Application filed September 15, 1891. Serial No. 405,810. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM FELLDIN, a citizen of the United States, and a resident of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Piano-Tuning Apparatus, of which the following is a specification.

My invention relates to the tension-bar and adjusting-screw and bearing-pin apparatus of the character represented in my patent, No. 449,409, dated March 31, 1891, for tuning the strings in a piano or other stringed instrument; and it consists in the hereinafter-described improvement in the construction and arrangement of the same, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation with a part in section of apparatus illustrating my invention. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation of one of the bearing-pins. Figs. 4 and 5 represent modifications of the bearing-pins.

a represents the supporting-base; *b*, part of the metallic frame supporting the pins *c*, commonly used for tuning the strings *d*.

e represents the part of the frame supporting the hitching-pins *f*, said strings being fastened to said hitching-pins *f* and tuning-pins *c* in the usual manner.

g represents the auxiliary tension-bar, and *h* the adjusting-screws thereon, placed above the strings between the bridge *i* and the agraffe *j*, with pins *k* to bear on the strings, substantially as and for the same purpose set forth in my said former patent, viz: The screws are to enable the strings to be adjusted more easily and to finer graduations than they can be by the much harder turning tuning-pins *c*, said screws being made to act on the strings through the pins *k*, which do not turn and have a slight crease or slot in the end to seat on the strings and prevent them (strings) from escaping, as they would from the ends of the screws, which would have to be flat in order to turn the strings as said screws are turned for adjustment. The pins may be perforated for the strings, as in Fig. 4.

The invention now claimed over that shown in the aforesaid patent consists in the arrangement of the bearing-pins *k* in sockets in the ends of the adjusting-screws, instead of in the holes of the tension-bar in which the screws work, which is found in practice to be better because the depth of the pin-supporting sockets can be much greater with a bar of the proper thickness for its purposes than the depth to which the pins may extend in the screw-holes of such a bar, and more especially because the pins remain their full depth in the sockets, and therefore always have the maximum lateral support, instead of being shifted outward of the socket and having their lateral support lessened as the screws are set forward.

In Fig. 5 I represent a bearing-pin *k* having the socket and the screw having a stud *l* entering the socket of the pin as an equivalent arrangement.

I claim—

In a string-tuning apparatus, the combination, with the tension bar and strings, said bar located over the strings, of the adjustable screws fitted in said bar and projecting through the bar, and bearing-pins connected with said screws by a socket in one and a part of the other fitting in said socket, said pins projecting beyond the ends of the screws, substantially as described.

Signed at New York, in the county of New York and State of New York, this 4th day of August, A. D. 1891.

ABRAHAM FELLDIN.

Witnesses:
W. J. MORGAN,
W. B. EARLL.