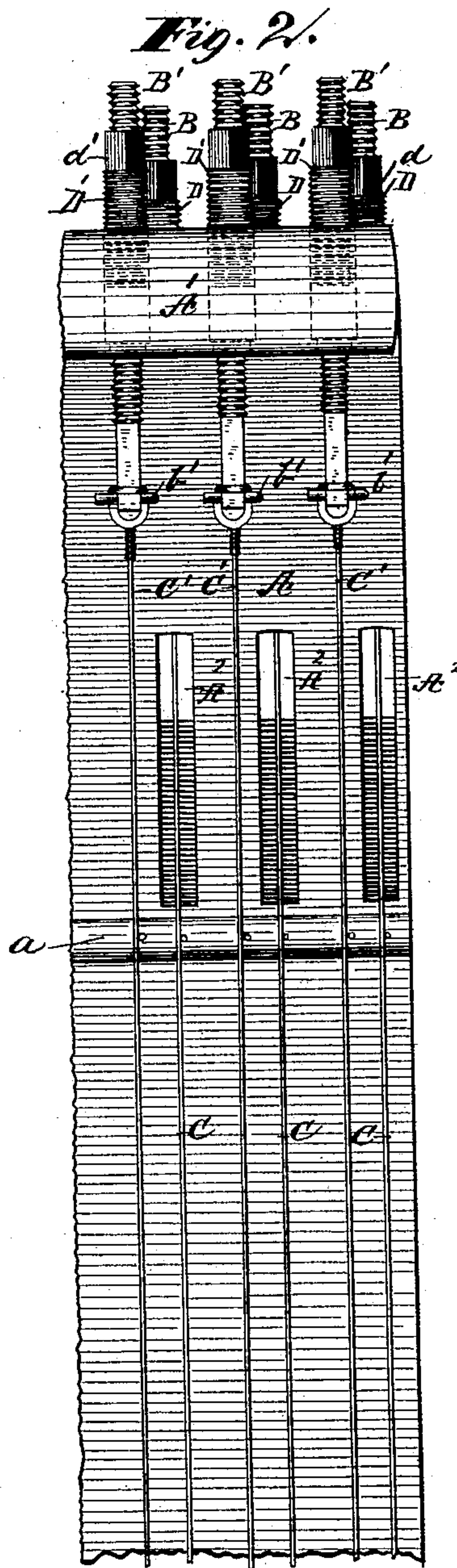
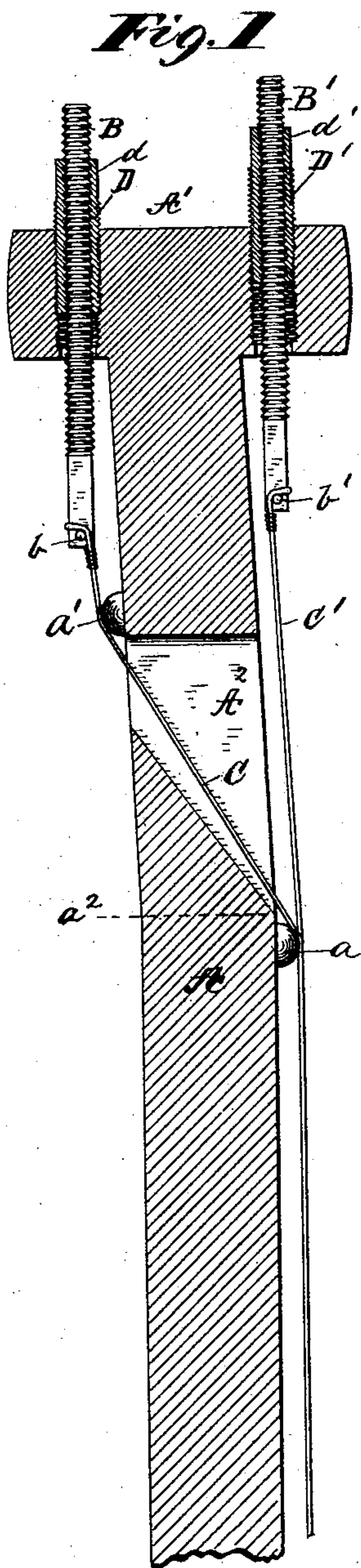


(No Model.)


H. B. NICKERSON.
STRINGING PIANOS.

No. 359,808.

Patented Mar. 22, 1887.



Witnesses:
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UNITED STATES PATENT OFFICE.

HIRAM B. NICKERSON, OF NEW BEDFORD, MASSACHUSETTS.

STRINGING PIANOS.

SPECIFICATION forming part of Letters Patent No. 359,808, dated March 22, 1887.

Application filed March 4, 1886. Serial No. 193,924. (No model.)

To all whom it may concern:

Be it known that I, HIRAM B. NICKERSON, of New Bedford, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in a Piano-Forte-Stringing Device; and I hereby declare the following to be a full and clear description thereof.

This invention relates to an improved construction of the iron frame to which the strings of the instrument are attached, so as to equalize the strain or pressure on both sides of the same, and also to a compound differentially-threaded tension-screw, which gives great accuracy to the tuning adjustment.

This invention will be readily understood by reference to the accompanying drawings, of which—

Figure 1 is a sectional elevation of the improved straining or tension plate and the stringing devices connected therewith, and Fig. 2 is a general plan of a part of the said plate.

In pianos and similar stringed musical instruments the straining or tension plate to which the strings are attached is usually so constructed that the tension-screws by which the strings are tightened are all placed in one side of the said plate, thereby producing understrain or compression to one side of the said plate. To remedy this evil I form the tension-plate A with a cross-head or T end, A', thus forming on each side of the said plate abutment-flanges A³ A⁴, into which the alternate tension-screws B B' are respectively placed on opposite sides of the said plate, thus equalizing the strain or compression upon the sides of the plate A and giving a much more perfect instrument than has hitherto been attainable.

In order to pass the strings C to the lower tension-screws, B, the plate A is mortised or slotted at A², so as to permit the string C to pass down through the said slot to the tension-screws, B. The string C' passes along the upper side of the plate A to the tension-screw B'. The wires are kept from contact with the upper side of the plate A by a cushion-bar, a, and those passing below the said plate are further guided in the same manner by a cushion-bar, a'. The said cushion-bars are attached to the opposite faces of the plate A, respectively,

contiguous to the front and back faces of the mortises A², as shown clearly in Fig. 1.

In order to place the tension-screw B' as nearly as possible in a direct line with the main line of the string C', the plate A is deflected slightly downward at the point coinciding with the seat of the cushion a, as shown clearly by the dotted line a² in Fig. 1. The tension-screws B B' have at their inner ends suitable pins, b b', by means of which the instrument-strings may be attached to them, as is hereinafter more fully set forth. These screws respectively pass through and engage in screw-threaded bushing-pieces D D', which said bushing-pieces, besides being screw-threaded interiorly for the threads of the said tension-screws, are screw-threaded exteriorly, and are adapted to engage in similar threads formed in the flanges A³ A⁴ of the tension-plate A. The said bushing-pieces D D', respectively, have angular outer ends or faces, d d', whereby a wrench may engage with them and rotate them, so as to turn them in or out, as required, for tuning or adjusting the piano. The screw-threads on the exterior faces of the bushing-pieces D D', by which they engage with the screw-threads in A', are much finer or of much smaller pitch than the screw-threads by which the said bushing-pieces engage with the tension screws B B', and as the turning of the bushing-pieces by means of their said faces d d' rotates them so as to screw them in or out on their fine threads in A', and at the same time and by the same movement also they, acting as nuts on the coarsely-screw-threaded tension-screws B B', screw them in or out with a relatively greater movement, the two parts act together as a differential screw, capable of tightening the instrument-strings with great delicacy of adjustment, and the compound screw thus constructed and operated holds the string up to the required key with much greater firmness than any mechanism hitherto used for this purpose can. This method can evidently be used in tightening the strings of other instruments than pianos with equally good effect. In engaging the strings of the instrument with the attaching ends of the tension-screws B B' the attaching ends of the said strings are preferably looped and the loops put on the said tighteners back of the pins b b', and the parts thus held securely together.

An equivalent for the pins *b b'* can be made by perforating the ends of the tension-screws, so as to pass the strings through them.

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

1. In a stringing and tuning device for stringed instruments, a differentially-threaded bushing-piece, centrally apertured and threaded for the tension-screw of the instrument and circumferentially threaded for engagement with the straining-abutment, substantially as described.

2. A stringing and tuning device for stringed instruments, consisting of a differentially-screw-threaded bushing-piece, a screw-threaded tension-screw, to which the strings of the instrument may be attached, and a screw-threaded straining-abutment, the whole arranged and adapted to operate substantially as shown and described.

3. The straining or tension plate of a piano-forte, deflected downward at its front end and provided with a series of slots for a part of the instrument-strings, and with a cross or T-shaped head piece, in which the tension-screws of the instrument are seated, substantially as shown and set forth.

4. A stringing and tuning device for a piano-forte, consisting of the tension-screws, the screw-threaded bushing-pieces, the grip-pins, as *b b'*, and the piano-strings, combined substantially as described and set forth.

In witness whereof I hereunto set my hand in presence of two witnesses.

HIRAM B. NICKERSON.

Witnesses:

J. F. F. RANDOLPH,
WM. E. RICHARDS.