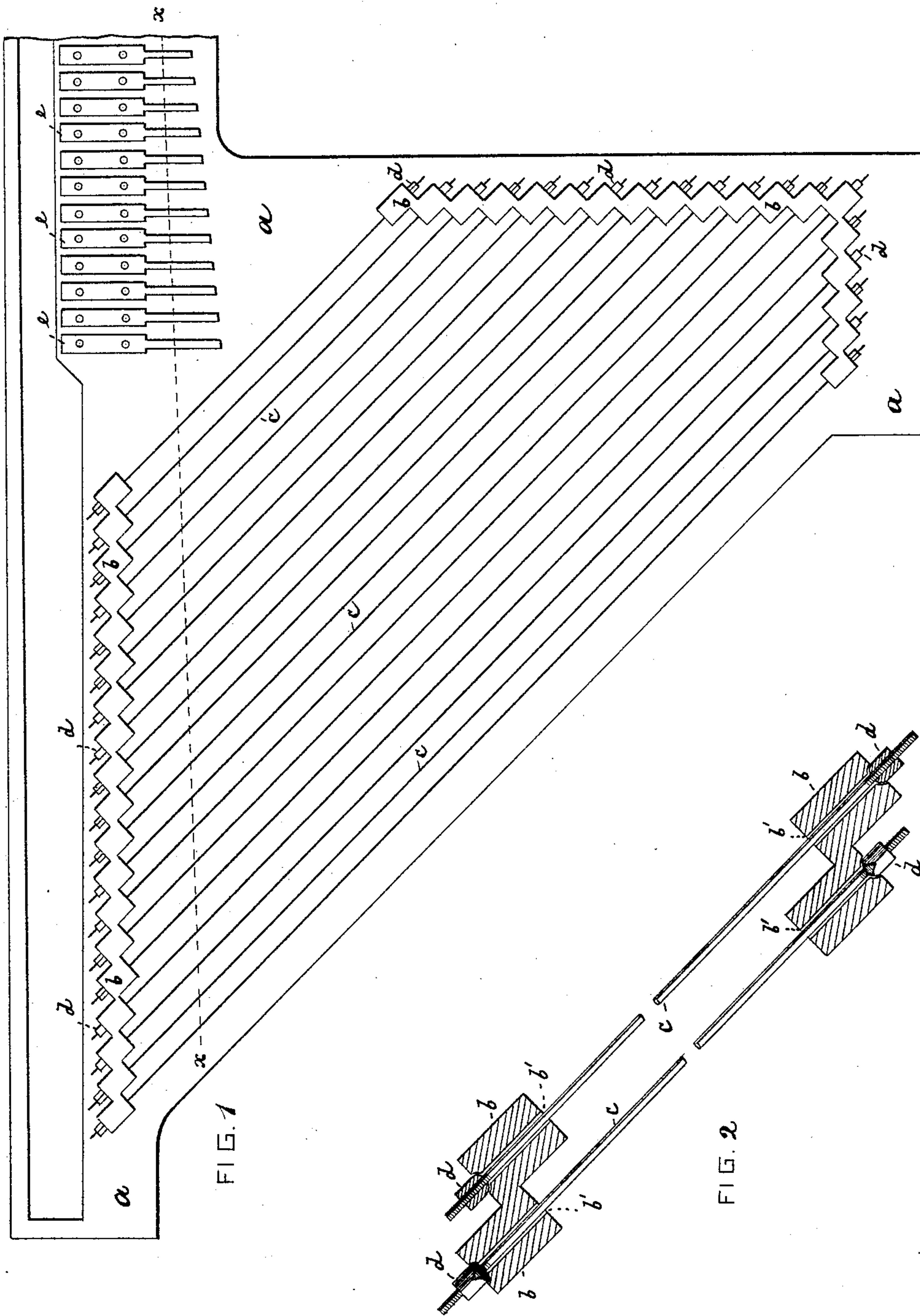


(No Model.)

G. STECK.
PIANO.

No. 452,006.

Patented May 12, 1891.



WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

GEORGE STECK, OF NEW YORK, N. Y.

PIANO.

SPECIFICATION forming part of Letters Patent No. 452,006, dated May 12, 1891.

Application filed January 22, 1891. Serial No. 378,644. (No model.)

To all whom it may concern:

Be it known that I, GEORGE STECK, of New York city, New York, have invented an Improved Piano, of which the following is a specification.

This invention relates to an improvement in stringless pianos, and more particularly to the construction of the vibrating metal rods that are struck by the hammers to produce the bass notes.

The invention consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is a front view of the back plate in an upright piano provided with my improvement. Fig. 2 is a detail vertical section through the fastening mechanism.

The letter *a* represents a metal plate adapted to be set into a piano and designed to carry the sound-producing rods.

b b are a pair of step-shaped ledges or rails projecting forwardly from plate *a*, and placed so as to face each other, as shown. The ledges *b* are perforated, as at *b'*, for the passage of a metal sound-producing vibrating rod *c*. The steps are placed at such an angle that each rod *c* enters and leaves its steps at right angles to such steps. The ends of rods *c* are threaded for the reception of nuts *d*. These nuts have rounded ends and enter countersunk semi-spherical seats or enlargements, in which the perforations *b'* terminate. The perforations *b'* are of such a width that the rods *c* can vibrate freely without coming into contact with the sides of the perforations. The nuts, on the other hand, embrace the rods *c* closely. Thus it will be seen that each rod is freely suspended between its two nuts, and that its vibration is unimpeded by the rails *b*.

To tune the rods *c* the nuts *d* are tightened up or relaxed, so as to change the tension of

the rods, as the nuts will strain the rods directly in the direction of their major axes.

The nuts *d* by entering the countersunk perforations are protected against any lateral motion. Thus the vibration of the rods *c* can never cause the nuts to shift their seats, and consequently such rods will at all times be held by the nuts in the center of the perforations *b'* and out of possible contact with the ledges *b*.

The short spring-plates *e* shown in the drawings are for the production of the higher notes, and do not constitute part of the present invention.

The dotted line *xx* indicates where the rods are struck by the hammers.

The advantages of my construction are that the piano needs no sounding-board, that the rods can be quickly tuned, and that they hold their tune for an indefinite time.

What I claim is—

1. The combination of plate *a* with perforated rails *b*, rods *c*, passing through the perforations, and nuts *d*, embracing the rods, the perforations in the rails being larger than the perforations in the nuts, substantially as specified.

2. The combination of plate *a* with rails *b*, having countersunk perforations *b'*, rods *c*, passing through said perforations, and nuts *d*, embracing the rods and entering the countersunk perforations, substantially as specified.

3. The combination of plate *a* with step-shaped rails having countersunk perforations, rods passing through said perforations, and with nuts embracing the rods and having rounded ends that are received by the countersunk perforations, substantially as specified.

GEORGE STECK.

Witnesses:

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