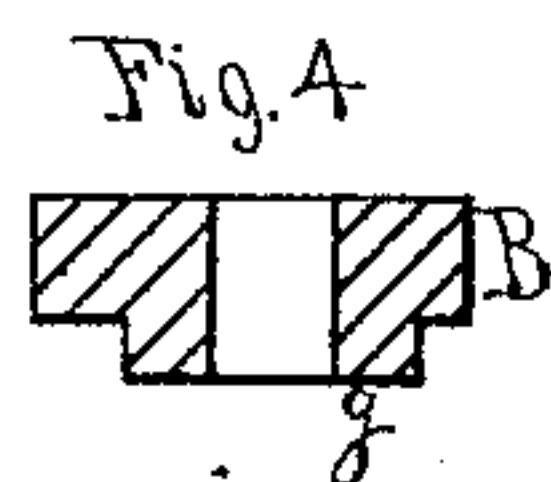
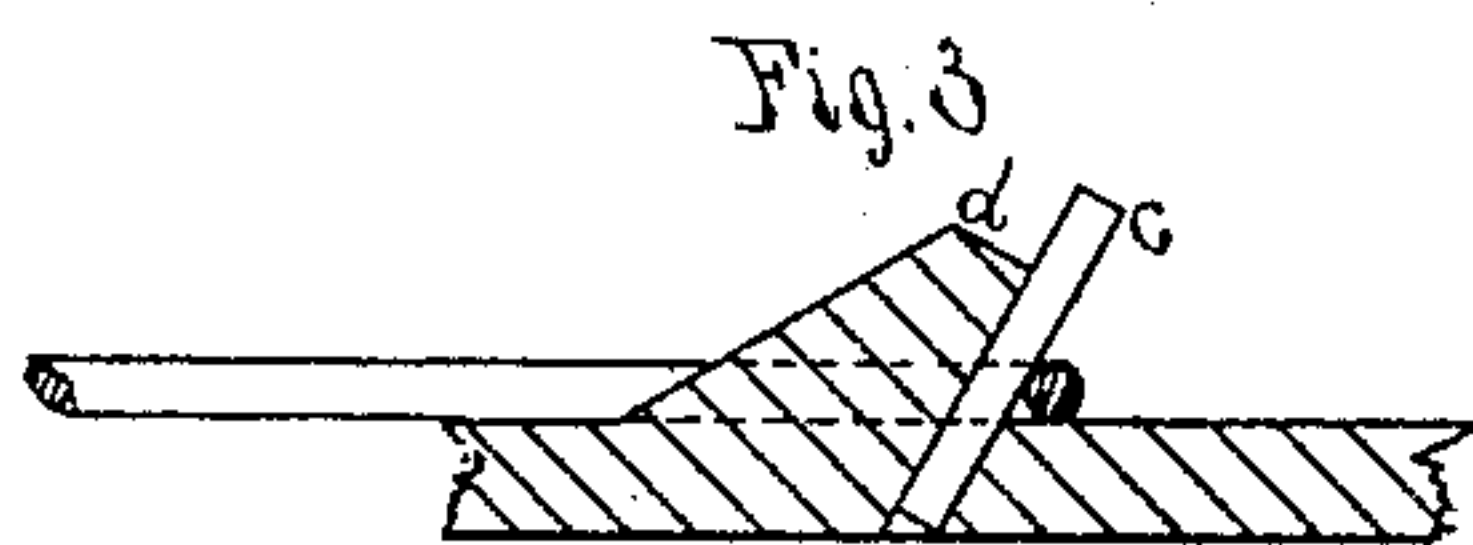
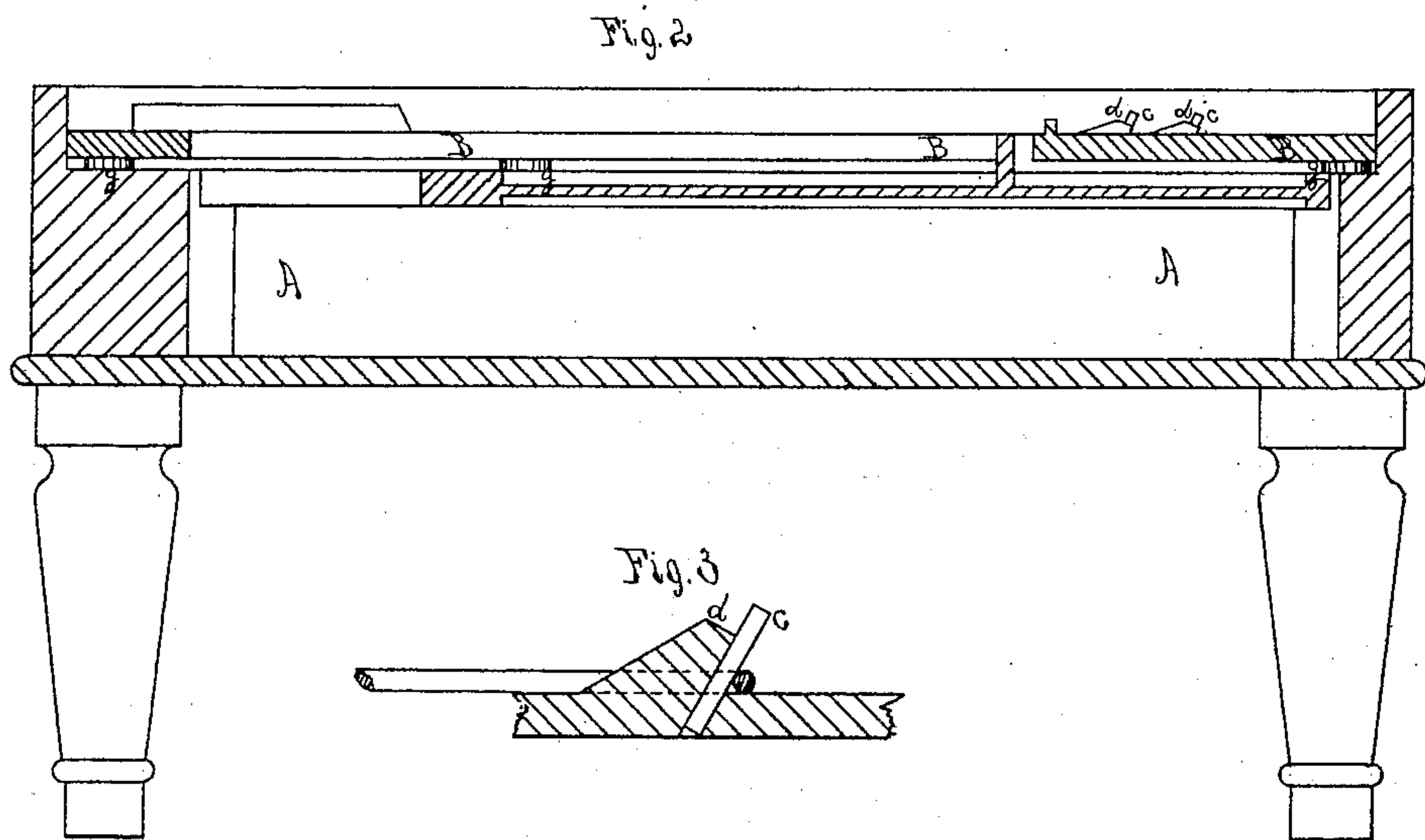
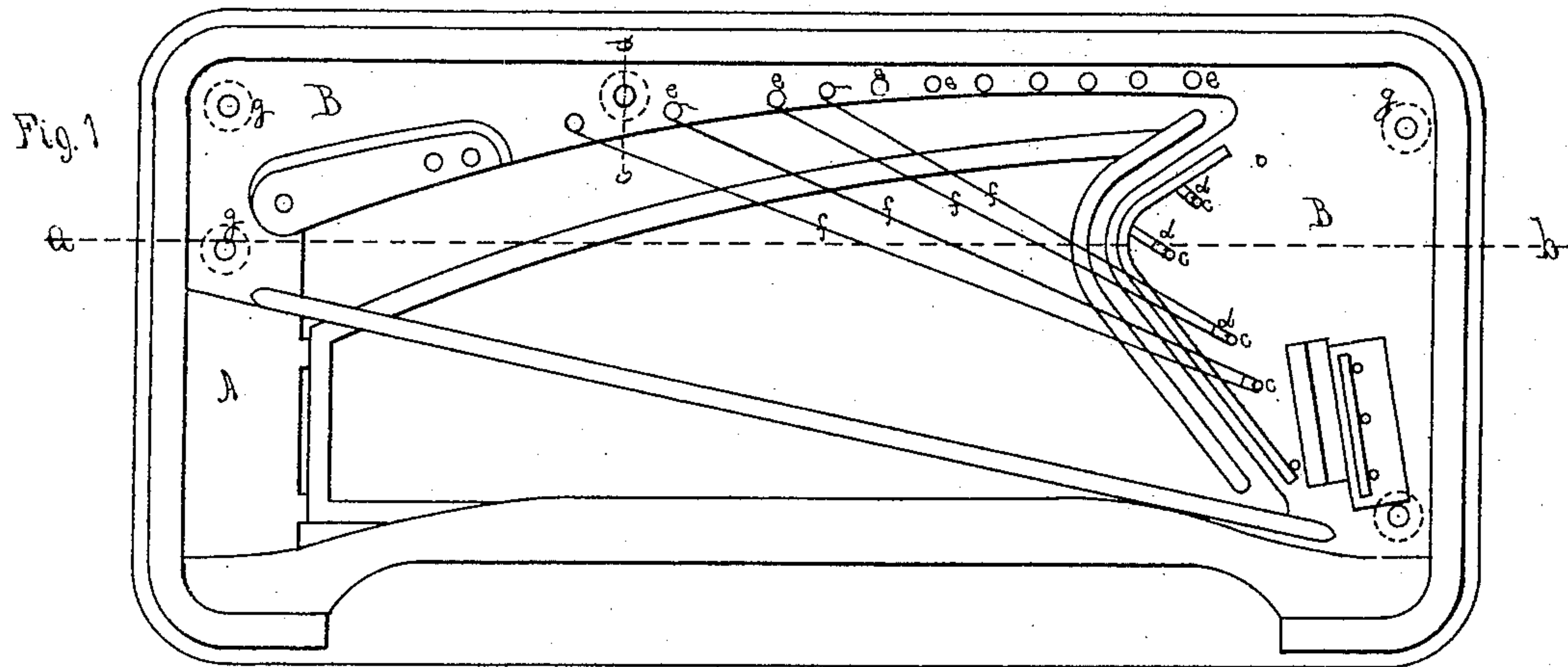


W. F. ULMAN.

PIANO-FORTE STRINGING DEVICE.

No. 169,932.

Patented Nov. 16, 1875.



Witnesses.

John E. Crane
Wm. S. Brown

Inventor.

W. F. Ulman

UNITED STATES PATENT OFFICE.

WILLIAM F. ULMAN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN PIANO-FORTE-STRINGING DEVICES.

Specification forming part of Letters Patent No. **169,932**, dated November 16, 1875; application filed February 2, 1874.

To all whom it may concern:

Be it known that I, WILLIAM F. ULMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Piano-Fortes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 represents a plan or top view with the cover removed, showing the string-connecting devices and some other parts. Fig. 2 represents a sectional elevation on the line *a b* of Fig. 1. Fig. 3 is an enlarged section of one of the string-connecting pins and the brace or shoulder made to hold the pin set at an angle. Fig. 4 is an enlarged section of a portion of the plate on the line *c d* of Fig. 1.

This invention relates to, and consists of, an improvement in the mode or means of preventing the string-connecting pins from being bent or drawn over when tightly drawn by the strings and tuning-pins, thereby keeping the piano-forte in better tune, and greatly improving and retaining the improved tone of the instrument.

In the drawings, A represents the block, and B the string connecting plate, which is raised above the block by hubs or bosses *g*, which are interposed between the upper side of the former and the under side of the latter. On the top of the plate B, and at the side of each string-connecting pin *c* set at an angle, as shown, I form a brace or shoulder, *d*, which is intended to be cast with, and as a part of, the plate. Each brace *d* is made about

the same thickness as the pin, which is inserted or driven into a hole at the desired angle, and at the junction of the shoulder or highest end of the brace, and so that each inclined pin shall be firmly supported by its brace, and each string *f* pass round its inclined pin at the throat or lowest point of contact, and the loop of each string lies fair on the top of the plate, and along each side of the brace, formed also at a suitable angle in the direction of the center, between the two tuning pins *e*, with which the ends of each string connect, all as clearly shown in the drawings. When the braces *d* and the inclined pins are applied, as described, and the strings connected, the pins will hold against the action or draft of such strings, however tight the strings may be drawn by the tuning-pins, and there will be no liability of the pins being bent or drawn over to slacken the strings, and as a consequence the instrument will be kept in better tune, and for a longer time, which I regard as an important matter in a piano-forte, and when used in connection with the plate raised from the block, as described, to improve the vibration, the whole instrument is greatly improved and benefited.

I claim as my invention—

The braces *d*, in combination with the plate B and with the string-connecting pins *c*, for the purpose and in the manner described.

WILLIAM F. ULMAN.

Witnesses:

JOHN E. CRANE,
WM. S. BROWN.