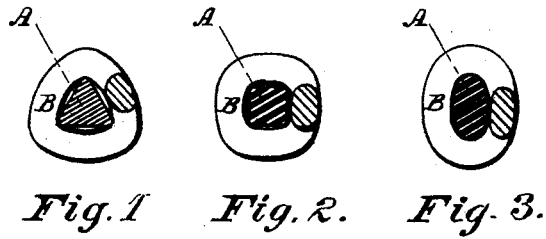


E. J. WATSON & P. BAUER.
Pianoforte-Strings.

No. 210,172.

Patented Nov. 19, 1878.



Witnesses
Benjamin Gilder
Reinhold Volkmann

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UNITED STATES PATENT OFFICE.

EDWIN J. WATSON AND PAUL BAUER, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN PIANO-FORTE STRINGS.

Specification forming part of Letters Patent No. **210,172**, dated November 19, 1878; application filed November 3, 1877.

To all whom it may concern:

Be it known that we, EDWIN J. WATSON and PAUL BAUER, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and valuable Improvement in Piano-Forte Strings; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figures 1, 2, and 3 are transverse sectional views of our piano-forte string.

Our invention relates to piano-forte strings which are covered or wound with wire; and it consists in making the steel wire or core for said strings oval, triangular, quadrangular, or polygonal (except round and round and flattened) in cross-section, for the purpose of holding the covering-wire firm and compact at every turn around said steel wire, as will be hereinafter more fully set forth.

The annexed drawings, to which reference is made, fully illustrate our invention.

A represents the steel wire or core of the string, and B is the covering-wire wound or wrapped around the same.

Ordinarily the practice has been to hammer a small space flat on the steel wire to be covered at each end where the covering was to be attached, thus leaving nearly the whole of the covering dependent on the ends for support, and causing a recoil and loosening of the covering after it is wound, and making in many cases the strings entirely useless on account of their making a false jarring tone.

To obviate this difficulty we make the steel wire or core A oval, triangular, quadrangular, or polygonal (excepting round and round and

flattened) in cross-section for its entire length. This may be done by flattening one or more sides, as shown in Figs. 1 and 2, or by giving it an oval shape on one or more sides, as shown in Fig. 3, or in any other way making it of other form than round and round and flattened in cross-section, so that the covering-wire B will be set and fastened at each and every turn upon the steel core.

The covering-wire B is wound around the steel string or core A in a uniform and close manner, and by the novel shape of said core the covering-wire becomes securely fastened at every turn, thereby preventing any recoil from taking place in said covering while being wound, or when finished, or when in use.

We are aware that a suggestion has been made of a flat string which may be wound. We therefore disclaim the invention thereof. It is obvious, however, that a string perfectly flat on both sides, unless it be provided with an unusual amount of metal to serve as body, is poorly adapted for winding.

What we claim as new, and desire to secure by Letters Patent, is—

As a new article of manufacture, a piano-string composed of a core oval, triangular, quadrilateral, or polygonal (except round and round and flattened) in cross-section throughout its entire length, and a wrapping of coiled wire, substantially as and for the purpose set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

EDWIN JUDSON WATSON.
PAUL BAUER.

Witnesses:

A. S. WATSON,
F. H. ALLEN.