

W. A. MUNCH.
Violin-Bow.

No. 214,427.

Patented April 15, 1879

Fig. 1.



Fig. 2.



Witnesses.

J. W. Garner
H. S. D. Haines

Inventor.

Wm. A. Munch
per
F. A. Lehmann
attly.

UNITED STATES PATENT OFFICE.

WILLIAM A. MUNCH, OF GROTON, NEW YORK.

IMPROVEMENT IN VIOLIN-BOWS.

Specification forming part of Letters Patent No. **214,427**, dated April 15, 1879; application filed October 21, 1878.

To all whom it may concern:

Be it known that I, WM. A. MUNCH, of Groton, in the county of Tompkins and State of New York, have invented certain new and useful Improvements in Violin-Bows; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in violin-bows; and it consists in substituting for the usual horse-hair fine wires made of steel, iron, or any other suitable metal, as will be more fully described hereinafter.

Figure 1 is a perspective of a violin-bow, and Fig. 2 is an enlarged detail view of the same.

Heretofore horse-hair has been used exclusively in violin-bows; but owing to its constant breakage, from several causes, it is objectionable. To remedy this defect I substitute for the horse-hair very fine wires *f*, which have

their ends soldered to the plates *a c*, which plates are detachably fastened to the ends of the bow by any suitable means. These wires may be made of steel, iron, or other metallic substance.

By the use of fine metallic strings just as fine tones can be produced, the bow is made more durable, and, the wires being soldered fast to the end plates, there is no danger of their breaking or getting loose from their fastenings.

Having thus described my invention, I claim—

As a new article of manufacture, a violin-bow provided with strands or strings of metal, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of October, 1878.

WILLIAM A. MUNCH.

Witnesses:

WILLIAM W. HARE,
D. L. GROVER.