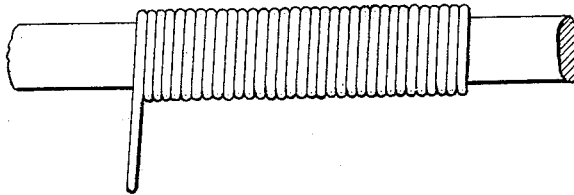


H. W. GRAY.  
Piano String.

No. 202,020.

Patented April 2, 1878.



Witnesses  
Harry Howson  
Harry Smith

Inventor  
Henry W. Gray  
by his Attorneys  
Howson and son

# UNITED STATES PATENT OFFICE.

HENRY W. GRAY, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN PIANO-STRINGS.

Specification forming part of Letters Patent No. 202,020, dated April 2, 1878; application filed March 3, 1876.

*To all whom it may concern:*

Be it known that I, HENRY W. GRAY, of Philadelphia, Pennsylvania, have invented an Improvement in Piano-Strings, of which the following is a specification:

My invention relates to an improvement in wire-wrapped piano-strings; and the object of my invention is to render such strings proof against the deteriorating effects of moisture, and at the same time to render the tones emitted by the strings more clear and resonant.

Ordinary strings, to which my invention relates, and which consist of cores of steel wire closely wrapped with finer copper wire, are liable to be injured by the action of the atmosphere, which, at certain seasons of the year and in different localities and climates, has such a corrosive effect on the metal as to impair the quality of the tones emitted by the strings.

In order to obviate these objections I take the usual copper-wrapped wire, an exaggerated view of which is shown in the accompanying

drawing, and subject it to the electro-gilding process, which is too well known to those engaged in the art to need description.

The deposit of gold on the wrapped string not only renders it proof against atmospheric influences, but the coils of wrapped wire are rendered more permanent, and practical tests have demonstrated the fact that the tones emitted by the strings are more clear, resonant, and of greater volume than those emitted from the ordinary wrapped wire.

I claim as my invention—

As a new manufacture, a piano-string consisting of steel wire closely wrapped with copper wire, and subsequently electro-gilded, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY W. GRAY.

Witnesses:

HARRY HOWSON, Jr.,  
HARRY SMITH.