F. BARSTOW.

STRING FOR MUSICAL INSTRUMENTS.

APPLICATION FILED OCT. 28, 1913. RENEWED MAY 12, 1916.

1,187,962. Patented June 20, 1916.

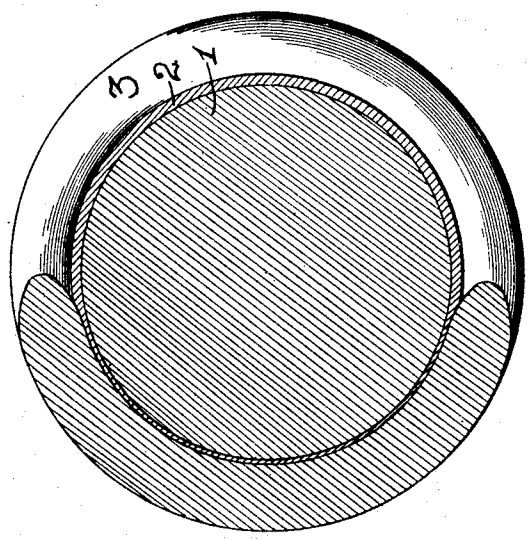


Fig. 2.

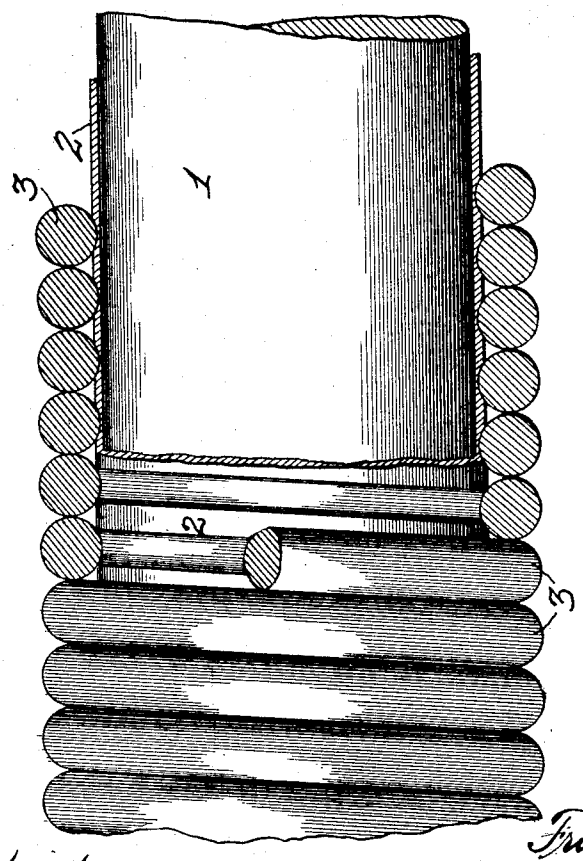


Fig. 1.

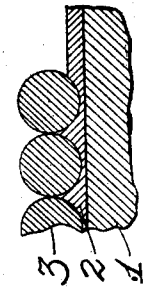


Fig. 1a.

Witnesses

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UNITED STATES PATENT OFFICE.

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STRING FOR MUSICAL INSTRUMENTS.

1,187,962. Specification of Letters Patent. **Patented June 20, 1916.**

Application filed October 28, 1913, Serial No. 797,795. Renewed May 12, 1916. Serial No. 97,184.

To all whom it may concern:

Be it known that I, FRANK BARSTOW, a citizen of the United States, residing at Elkhart, in the county of Elkhart and State of Indiana, have invented certain new and useful Improvements in Strings for Musical Instruments, of which the following is a specification.

This invention relates to strings for stringed musical instruments and particularly to that class of strings which are built up of a core of organic matter, such as gut, and an outer surface of metal in the form of a wire wound thereon.

In strings of this class as heretofore constructed, serious difficulties have been encountered as an incident to changes in atmospheric conditions owing to the absorption or giving off of moisture by the core of organic matter, which results in changing the longitudinal dimension of the string and consequently its pitch when tensioned upon the instrument, and also changing its transverse dimension with consequent impairment of the quality of its tone. It has been proposed to ameliorate these difficulties by providing the composite string with a filler of floss silk wound upon the core and beneath the outer metallic layer; but this was effective only in a degree and was only temporary in its effect.

The present invention avoids these several difficulties by providing a composite string with a filler between the core and the outer winding of such character that it not only protects the core largely or wholly against excess moisture sufficient to affect its dimensions, but also provides a foundation in which the outer metallic winding embeds itself and forms separate seats for its individual coils and which will compensate for changes in the transverse dimension of the core, as well as expansion and contraction in the metallic covering and thereby prevent both the impaired quality of tone due to any enlargement of the core which might take place, and the rattling or creeping of the coils that would result from any shrinkage of the core that might take place.

The invention will be fully understood from the following description in connection with the accompanying drawings, in which drawings—

Figure 1 is a longitudinal view partly in section and on a very much enlarged scale of a composite string constructed in accordance with my invention, and Fig. 1ª shows a modification. Fig. 2 is a transverse section of the same.

In these figures, 1 represents the central core of organic material, such as animal gut, which is constructed in the manner common and well known to manufacturers of strings for musical instruments.

2 represents a surfacing or sheath of plastic material of the character herein described which is applied to the core previous to applying the metallic winding; and 3 represents a metallic winding which, except for the special foundation prepared for it in accordance with the present invention, may be in structure and mode of applying substantially identical with known practice in the art to which the invention belongs.

The surfacing or sheath 2 constitutes a filler between the core and the outer winding, so that the winding will embed itself at least to some degree in being wound upon the core, and the helix formed by the winding will be prevented from assuming so small a diameter as will render the core too tight within the winding in case there should be swelling of the core. The filler serves the further function of compensating for shrinkage in the core, in that it will permit of some reduction in the transverse dimension of the core without permitting the metallic winding to rattle or impair the quality of the tone. This filler also permits the winding to develop separating seats for the coils of the winding, so as to keep such coils in place and thereby avoid creeping or rattling against one another.

The sheath or surface applied to the core in order to develop the filling between the inner and outer bodies of the string is preferably formed of a material which retains elasticity while the string is in use. While I do not limit myself to any particular material for this purpose, I have found in practice that collodion is quite suitable because of its inherent quality of retaining its elastic condition and not becoming hardened so that it remains an effective packing and serves as a damper against vibration in case the core should shrink in the structure.

The thickness of the sheath which forms the bed for the winding may be varied at will according to the materials employed. Thus it may be such as to enter but slightly

the spaces between the convolutions of the wire winding, as shown in Fig. 1, or it may be of sufficient thickness to substantially fill these spaces as shown in Fig. 1ª.

I claim:—

1. A wire-wound musical instrument string comprising a tensioning core of organic material, a metallic winding around said core, and a water-proof cushioning and embedding sheath interposed between the core and winding.

2. A wire-wound musical instrument string comprising a core of gut, a continuous sheath of impervious and elastic plastic material surrounding said core, and an outer winding of wire having its coils individually embedded in said sheath, and the material of the sheath entering between and confining the said coils.

The foregoing specification signed at Washington, District of Columbia, this 28th day of August, 1913.

FRANK BARSTOW.

In presence of two witnesses—

HERVEY S. KNIGHT,

BENNETT S. JONES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."