Jan. 1, 1924

1,479,449

J. G. BENTLEY

WOUND PACKAGE

Filed June 15, 1923

Fig. 1.

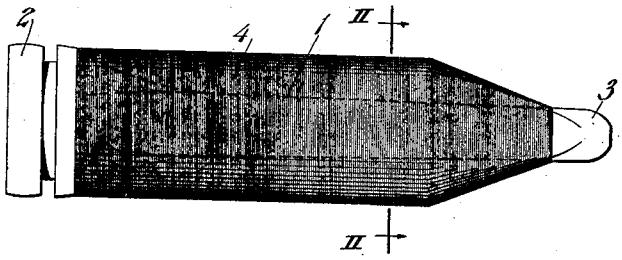


Fig. 2.

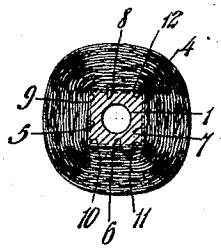


Fig. 3.

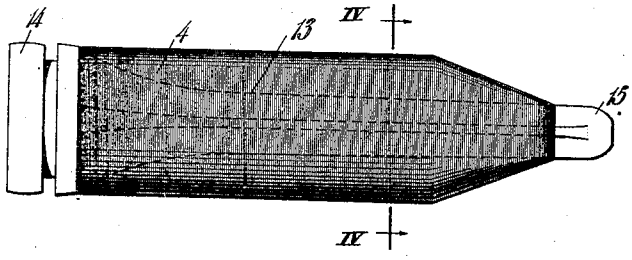


Fig. 4.

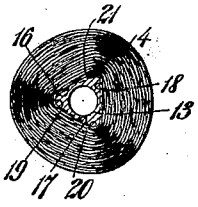


Fig. 5.

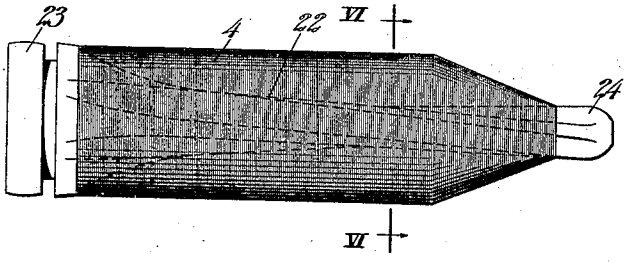
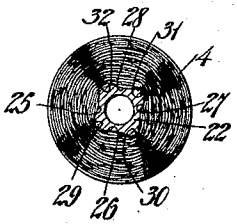


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN G. BENTLEY, OF PATERSON, NEW JERSEY.

WOUND PACKAGE.

Application filed June 15, 1923. Serial No. 645,609.

To all whom it may concern:

Be it known that I, JOHN G. BENTLEY, a citizen of the United States, and resident of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement in Wound Packages, of which the following is a specification.

Where a metal filament, such as tinsel, has been wound on a quill of ordinary circular form in cross section, it has been necessary to make a quill of very great diameter in comparison to the thickness or wrappings of the filaments around it and it has been also necessary to only put a very thin layer of said wrappings around the quill. Otherwise when the wound quill was in use in the loom, owing to the nature of the metal filament which is smooth, hard and also very heavy, the whole wound mass would have a tendency to slide off the end of the quill as the shuttle was thrown back and forth in the loom. Therefore, owing to the relatively small amount of filling which can be wound on a quill of this character in comparison with what is wound on a quill when using other materials, such as cotton, silk, etc., the production of the metal filled cloth was very slow and expensive this being due to the vast number of quills a weaver would have to put in his shuttles during a day, making it necessary to stop the loom every time a new quill was inserted into the shuttle.

The object of my invention is to produce a wound package in which the quill is of non-circular or irregular cross section along its winding portion and preferably provided with one or more pronounced edges whereby the metal filament winding will be made to cling to the quill, thus rendering it possible to wind to a far greater thickness than was possible heretofore, without danger of the windings shelling off the quill and also materially increasing the length of time that a quill will last when weaving in the loom and thus relatively increasing the production.

By my improvement I have found that the thickness of the wrappings on the quill can be more than double the diameter of the empty quill, the edge or edges caused by the irregular shape of the quill along the winding portion thereof serving to grip the metal tightly and distinctly bend it. The metal filament between the edges is wound comparatively loose so that the outer layers have a tendency to sink into the folds of the inner layers at these loose points, thus causing the interlocking of the layers and preventing the windings from shelling off the quill. This type of winding will not hinder the drawing off of the filament as it is more or less stiff and has a tendency to unwind or spring away from the quill which causes it to form a wide arc around the quill so that it will not catch in any of the edges which would be the case if the wrappings were of a different nature.

The taper or thickness of the quill is not materially important as the wrappings may be wound on and drawn off quills of greatly varying thicknesses and tapers.

The quill which forms a part of the wound package may be made in many different forms in cross section. Several of these forms are illustrated in the accompanying drawings, in which—

Fig. 1 represents a side elevation of a wound package, the quill of which is secured in cross section along its winding portion.

Fig. 2 represents a cross section taken in the plane of the line II—II of Fig. 1.

Fig. 3 represents a side elevation of a wound package, the quill of which is triangular in cross section.

Fig. 4 represents a cross section taken in the plane of the line IV—IV of Fig. 3.

Fig. 5 represents a side elevation of a wound package, the quill of which is provided with four spiral grooves along its winding portion.

Fig. 6 represents a cross section taken in the plane of the line VI—VI of Fig. 5.

In Figs. 1 and 2 the winding portion of the quill is denoted by 1, the headed end by 2 and the non-headed end by 3. The traverse wound metal filament is denoted by 4. In this particular form of wound package the winding portion of the quill is square in cross section. The four sides 5, 6, 7, 8 forming between them four pronounced edges or corners 9, 10, 11, 12.

In Figs. 3 and 4 the winding portion of the quill is denoted by 13, the headed end by 14 and the non-headed end by 15. The winding portion of the quill is triangular in cross section in this particular form of wound package. The three sides 16, 17, 18 forming between them pronounced edges or corners 19, 20, 21. In Figs. 5 and 6 the winding portion of the quill is denoted by 22, the headed end by 23 and the non-headed

end by 24. In this form of wound package the quill is shown as being provided with four spiral grooves 25, 26, 27, 28, forming between them four edges or corners 29, 30, 31, 32.

In all of these forms the edges are provided along the winding portion of the quill for bending the metal filaments of the wound package, leaving looser portions between the edges so as to permit the interlocking of the several layers of the windings and thus prevent the shelling off of the coils from the end of the quill and thus destroy the further usefulness thereof.

The provision of these edges also permit the traverse winding of an interlocked mass of the metal filament on the quill, such mass having a substantial thickness between its ends as compared to the diameter of the quill in the corresponding cross sectional plane.

It is evident that the edges or corners formed along the winding portion of the quill, which forms a part of the wound package may be sharp or blunt as the case may be, and that the body of the quill when viewed in cross section along its winding portion may assume many different shapes between such edges or corners so long as the metal filament windings will be caused to become interlocked and thus permit a substantial thickness of the traverse wound material to be retained on the quill, the same not being dependent upon the size or the diameter of the quill, the invention being as applicable to quills of small diameter as to quills of large diameter.

What I claim is:—

1. A metal filament wound shuttle package comprising a quill multi-sided in cross section along its winding portion and a traverse wound interlocked mass of the metal filament thereon.

2. A metal filament wound shuttle package comprising a quill rectangular in cross section along its winding portion and a traverse wound interlocked mass of the metal filament thereon.

3. A metal filament wound shuttle package comprising a quill square in cross section along its winding portion and a traverse wound interlocked mass of the metal filament thereon.

4. A metal filament wound shuttle package comprising a quill multi-sided in cross section along its winding portion and a traverse wound interlocked mass of the metal filament thereon, the said mass having a substantial thickness between its ends as compared to the diameter of the quill in the corresponding cross sectional plane.

5. A metal filament wound shuttle package comprising a quill rectangular in cross section along its winding portion and a traverse wound interlocked mass of the metal filament thereon, the said mass having a substantial thickness between its ends as compared to the diameter of the quill in the corresponding cross sectional plane.

6. A metal filament wound shuttle package comprising a quill square in cross section along its winding portion and a traverse wound interlocked mass of the metal filament thereon, the said mass having a substantial thickness between its ends as compared to the diameter of the quill in the corresponding cross sectional plane.

In testimony, that I claim the foregoing as my invention, I have signed my name this 5th day of June, 1923.

JOHN G. BENTLEY.