May 8, 1923.

1,454,573

S. A. BARBOUR

WOUND PACKAGE

Filed July 3, 1922

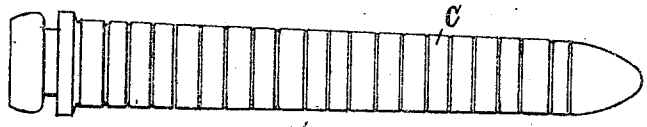


Fig. 1.

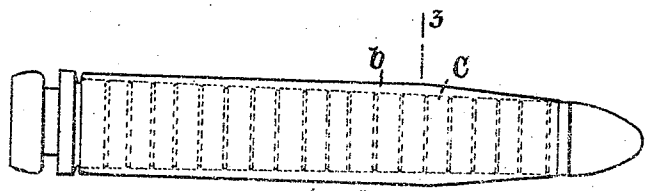


Fig. 2.

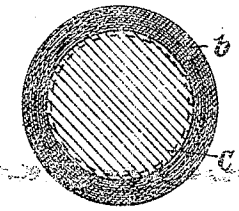


Fig. 3.



Fig. 4.

WITNESS

Wm. Bell.

INVENTOR,

Samuel A. Barbour,

BY

Johnson Stewart.

ATTORNEY.

Patented May 8, 1923. 1,454,573

UNITED STATES PATENT OFFICE.

SAMUEL A. BARBOUR, OF PATERSON, NEW JERSEY.

WOUND PACKAGE.

Application filed July 3, 1922. Serial No. 572,513.

To all whom it may concern:

Be it known that I, SAMUEL A. BARBOUR, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Wound Packages, of which the following is a specification.

This invention relates to wound shuttle packages of the class having a quill or the like elongated core for the windings, and it has reference particularly to wound shuttle packages of this class in which the windings are composed of a filament such as tinsel, that is to say, material distinguishing from silk, cotton, wool and the like materials in that it is of considerably greater weight; has a flat cross-section so that the windings lie in layers without interlock between the layers; is hard or unimpressionable, to such an extent in fact that even where the mass of windings represents many layers such mass is practically non-yielding to pressure; and is finally smooth, i. e., without any medium, such as the projecting fibres in ordinary textile strands, acting to bind the components of the wound mass together.

Great difficulty has been met with in the effort to utilize successfully wound packages of such material in shuttles for looms. The component coils having a tendency to expand and having no coupling of any kind with each other such as are afforded by the fibres in ordinary textile strands, and the material being hard and smooth and also flat and of uniform thickness so that the coils exist in the package as parts of distinct non-interlocking laminæ from end to end of the mass, and the mass being in addition much heavier than a corresponding quantity of any other textile strands, as an incident of the impelling and stopping of the shuttle at the ends of its flight across the lay more or less of the mass, usually at the free end of the package, slips away, with the result that the loom cannot be continued in operation for many picks without a breaking down of the mass occurring and necessitating the stopping of the loom in order to remove the snarl of winding that results. These frequent stoppings are a great annoyance in weaving and they contribute very materially to increase in the cost of manufacture.

The object of this invention is to provide a wound package of the class indicated constructed so as to overcome this difficulty. The package illustrated in the accompanying drawing accomplishes this purpose, having in considerable actual practice demonstrated that the necessity for stopping the loom on account of slippage of the convolutions thereof is substantially no more likely to occur with such a package than it is in the case of wound packages composed of fibrous material and therefore having in their favor many factors which oppose or do not conduce to slippage.

In said drawing,

Fig. 1 is a side elevation of the quill or core;

Fig. 2 is a side elevation of the improved wound package;

Fig. 3 is an enlarged transverse sectional view thereof on line 3—3, Fig. 2, where the wound mass is thickest; and

Fig. 4 is a magnified longitudinal sectional view of the windings, this view being provided in order to afford an idea of the cross-sectional form of the material (tinsel) and how its coils exist in the package in distinct non-interlocking laminæ.

The ordinary wound package employed in shuttles has a quill or core the diameter or thickness of which, in a package of about the dimensions shown in the drawing, would be about one-third of the diameter of the package shown in Fig. 3. In other words, in ordinary wound packages the quill's diameter or thickness represents the minor part of the diameter of the entire package. Each time a shuttle in a loom is impelled across the lay and comes to a stop at the end of its flight the inertia of the wound mass tends to displace it longitudinally of the quill or core. In packages of fibrous material, which is soft, round in cross section, more or less light, and fuzzy, this tendency is not free to produce any practical disadvantage. But when the material has the hereinbefore mentioned characteristics of tinsel (to wit, hardness and smoothness, appreciable weight, a flat and uniformly thin cross-section and the tendency to lie flat and so form distinct laminæ, as shown by Fig. 4, where the convolutions of the tinsel are indicated at *a*) it is free to do so, to the extent, as indicated, of being both a great source of annoyance in weaving and of adding considerably to the cost of production. Now according to my

invention, instead of forming the quill and wound mass so that they are so proportioned that the former represents the minor part and the latter the major part of the diameter of the entire package I proportion them so that the wound mass *b* has so little thickness that relatively to the thickness of the quill or core *c* it is but a comparatively thin shell thereon. In actual practice, the quill or core is made much thicker than is usually the case, the object of which is to obtain larger convolutions of the windings and so considerably postpone the exhaustion of the package and also to increase the radius of the convolutions so that, not being bent too sharply, they are not so disposed to expand and so relax their grip on the core. But I do not wish to be limited to the quill or core being so enlarged, since the essence of my invention and the factor principally responsible for its success in actual practice is the proportioning of the mass *b* so that relatively to the thickness of the quill or core it has so little thickness as to be but a relatively thin shell thereon.

The fact that this shell is thin is of especial importance because no part thereof outward of any lamina (even the first) represents sufficient weight (i. e., mass) to have inertia be a factor in causing an appreciable slipping thereof, notwithstanding the layers are much freer to slip than in ordinary packages.

It will be understood that the package is wound by the well-known so-called traverse-wound method, i. e., by effecting reciprocation as between the quill or core and a guide for the tinsel, and also advancing one of them at the same time or at intervals, longitudinally of the axis of the core.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A wound package including an elongated core and a traverse-wound mass of windings of a hard, smooth, flat and uniformly thick filament thereon, said mass having a thickness so little in respect to that of the core as to be but a relatively thin shell thereon.

2. A wound package including an elongated core and a traverse-wound mass of windings of a flat and uniformly thick metal filament thereon, said mass having a thickness so little in respect to that of the core as to be but a relatively thin shell thereon.

In testimony whereof I affix my signature.

SAMUEL A. BARBOUR.