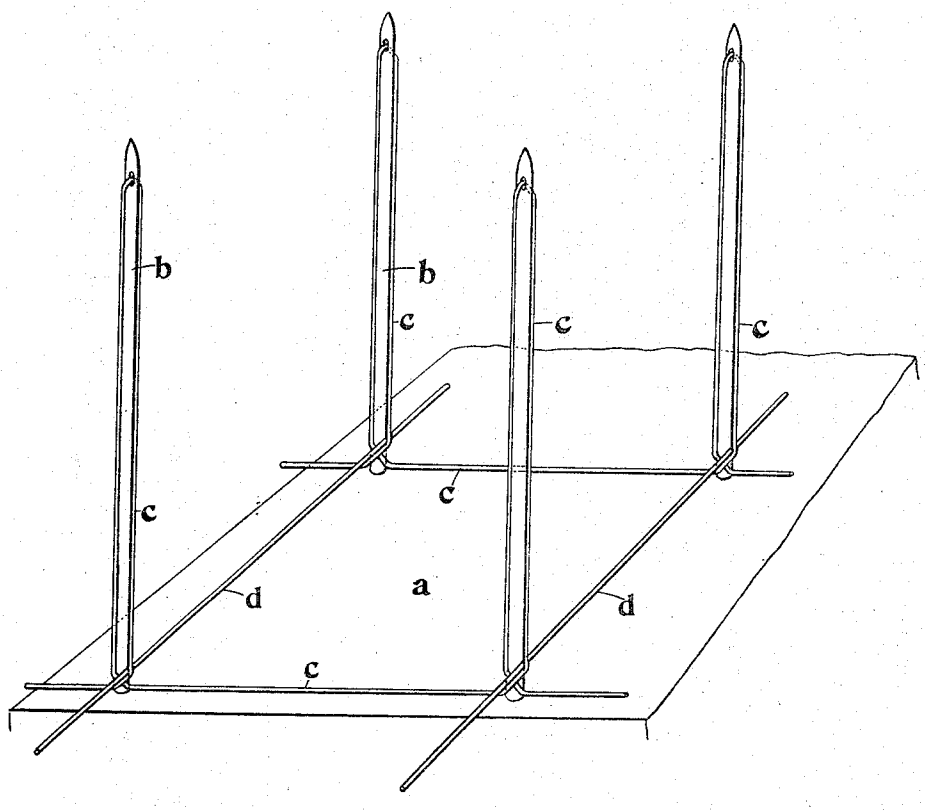
A. GOWER.

METHOD OF MANUFACTURING PADDING FOR USE IN MAKING BULLET PROOF CLOTHING, ARMOR, SHIELDS, AND THE LIKE.

APPLICATION FILED OCT. 30, 1916.

1,226,767. Patented May 22, 1917.



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARTHUR GOWER, OF LONDON, ENGLAND.

METHOD OF MANUFACTURING PADDING FOR USE IN MAKING BULLET-PROOF CLOTHING, ARMOR, SHIELDS, AND THE LIKE.

1,226,767. Specification of Letters Patent. Patented May 22, 1917.

Application filed October 30, 1916. Serial No. 128,472.

To all whom it may concern:

Be it known that I, ARTHUR GOWER, a subject of the King of Great Britain and Ireland, residing at the White City Garage, Wood Lane, Shepherd's Bush, London, W., England, have invented certain new and useful Improvements in Methods of Manufacturing Padding for Use in Making Bullet-Proof Clothing. Armor, Shields, and the like, of which the following is a specification.

This invention relates to known material that is adapted to resist or prevent penetration of bullets, shrapnel splinters, bayonets and the like, and which, while offering considerable resistance to penetration is relatively light, being adapted to be worn without inconvenience and to be applied upon the person in the form of a lining or pad for waistcoats, coats or tunics.

The material referred to may consist of cotton, silk or other similar fine and suitable fibers either animal or vegetable advantageously in the form of a fleece or felt and I apply upon the fiber resin or a like substance in the condition of powder as has before been proposed, so that the resin is distributed thoroughly and uniformly throughout the fiber. By such means a material is produced that is highly resistant to penetration by reason of the thorough impregnation of the fiber with the resin powder.

The invention comprises the method of manufacture which is hereinafter described and diagrammatically illustrated in the accompanying drawing.

In carrying the invention into effect I employ raw cotton or cotton wool but any other similar fiber of short, medium or long staple may be employed. I may for example employ silk or wool or I may mix the silk or wool with the cotton. I prefer, however, to use the fiber in the condition of a fleece after having been passed under rollers or having been subject to pressure to form a thin layer.

It will be understood that inasmuch as the material is resistant to penetration it is with difficulty prepared for use after impregnation with resin powder. It is the purpose of the invention first to form the fiber or fleece or the layers of fiber or fleece into the final shape of the pad or lining to be produced and to pass the threads that may be used for quilting or binding the layers through the layers before the application of the resin powder. For this purpose, therefore, as illustrated, I provide a table *a* (a part only of which is illustrated) upon which I mount a series of needles *b* in positions equidistant one from the other. The needles *b* are fixedly mounted in the table *a* and are each provided near their upper pointed extremities with an eye. The quilting threads *c*, *d* are disposed upon the table *a* in longitudinal and transverse series, the transverse threads *c* being passed through the eyes of the needles *b* in each series and being held down by the longitudinal threads *d* so that thus after the threads have been laid and threaded through the needles the layers *e* of cotton wool cut or formed to the desired shape are laid on the table over the needles *b*, the needles passing through the layers. The resin powder is applied on each layer so that the fiber is thoroughly impregnated with the powder and the quilting threads are then tied. The pad or lining thus produced is advantageously subject to heat in an oven or otherwise at a temperature a little higher than that which would be necessary to melt the resin so that by such means the resin powder is caused to adhere to the fiber. The pad or lining may then be subject to pressure within a press or between rollers or the pressure may be applied within a steam heated press whereby the preliminary heating of the pad or lining is dispensed with.

The pad or lining may then be inserted within a casing or cover by means of which it may be secured within the waistcoat, tunic or coat, or upon the armor, or shield, or elsewhere, by which it may be mounted in position according to the purpose that it is to serve.

It will be understood that in building up the pad or lining a sheet of cloth or fabric or other substance to serve as a cover is applied first upon the table and after the layers have all been applied in position another covering sheet may be applied on the top and thus the whole are quilted together with top and bottom cover sheets.

It will be understood that the thickness of the pad or lining may be varied according to requirements. The thicker the material the more highly resistant it becomes. I have found that by building up the pad or lining in the manner described from

layers of cotton thoroughly impregnated with resin powder to a thickness of half an inch when compressed, a bullet discharged from a revolver at 15 yards failed to penetrate the pad. Such a pad may be used as a lining for shields worn upon the person at the front or back or it may be used in any other situation as a screen or shield.

It will be understood that instead of resin I may use a substance similar in characteristics to resin, but I prefer to use brittle resin reduced to a condition of fine powder.

I claim:—

A method of manufacture of puncture resisting pads or linings from layers of fiber impregnated with resin by first forming the layers of fiber into the final shape and passing the quilting or binding threads through the respective layers and successively impregnating the said layers with resin after the quilting or binding threads have been passed through them.

ARTHUR GOWER.

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