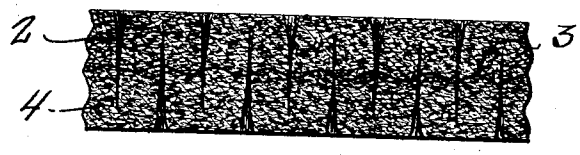
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GUN WAD MATERIAL

Filed March 24, 1930



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UNITED STATES PATENT OFFICE

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GUN WAD MATERIAL

Application filed March 24, 1930. Serial No. 438,513.

The invention relates to gun wad felt.

In the gun wad felts formed by punch-felting together bats of animal hair or other fibrous material on opposite sides of a fabric reinforcement and where the same has been impregnated with size, dried and subjected to pressure to bring it to the desired thickness and density, it has been necessary to apply sheets of paper to the top and bottom sides thereof to enable wads cut therefrom to be fed and handled in an expeditious manner in the loading machines. This paper-coating step increases the cost of the product and the waste after cutting has little commercial value because of the necessity for removing the paper therefrom. The object of this invention is to provide an improved gun wad felt wherein the sizing has incorporated therein an ingredient which holds down the fibres to the body of the fabric and permits the production of a smooth surface so that this material as a finished product may be cut directly into wads and fed to the loading machines, thus eliminating any subsequent surfacing with paper or coating of any kind.

The invention further consists in the several features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

The drawing shows a sectional view of the improved gun wad material.

The gun wad material constituting the invention is, as previously noted, a punched-felt material and is produced by punch-felting one of the fibrous layers 2 of animal hair or other suitable fibrous material to a fabric reinforce 3 and punch-felting the other of the fibrous layers 4 of animal hair to said fabric 3 and to the opposite layer. This material is then impregnated with a composition that acts as a size and also as a means for producing a smooth surface.

As one example of this composition, I may mix two hundred and seventy pounds of tapioca gum in one hundred gallons of cold water in a tank equipped with agitators and when the gum is dissolved I add thereto thirty pounds of resin, preferably in liquid form. I then add sufficient water to bring the solution up to approximately four hundred gallons, after which it is brought to a temperature of approximately 180 to 190 degrees Fahrenheit and held there for five or ten minutes and is then ready for use. These proportions are given only by way of example and not by way of limitation and are subject to some variations, and the amount of water is such as to produce a sticky and gummy mixture and forms a relatively thick paste. The principal feature of this size is the resin constituent and a suitable vehicle, such as the gum, for taking the same, as the resin is found to have very desirable properties for holding down fibres and producing a smooth surface.

The material impregnated with this size is then subjected to the process more particularly disclosed and claimed in my co-pending application, Serial No. 438,514, filed Mar. 24, 1930, for gun wad material and process of making the same, whereby the sizing-impregnated felt is subjected to a preliminary heating and pressing action before passing to the driers and after drying is slightly moistened and then subjected to the action of relatively high pressure in an hydraulic press to further pack or compress the felt to the proper thickness and density. This process, with the particular sizing composition herein set forth, produces a gun wad felt in which the usual protruding fibres on the surface of the felt that prevent its direct use in loading machines are laid down and the outer surfaces are so smooth that it is not necessary to provide an exterior coating on the finished product and the material thus formed can be cut directly into wads and subjected to the subsequent loading operations, thereby greatly decreasing the cost of the gun wad material over those forms requiring subsequent treatment for rendering the surfaces non-sticking.

What I claim as my invention is:

1. As a new article of manufacture, punch-felted gun wad felt, in which a substantial proportion of the fibres extend axially of the material and some of which ordinarily protrude from the surface of the material, impregnated with a sizing containing resin and having smooth outer surfaces so that the

material can be cut into wads and used directly in loading machines without further treatment.

2. As a new article of manufacture, a gun wad felt composed of punch-felted animal hair, in which a substantial proportion of the fibres extend axially of the material and some of which ordinarily protrude from the surface of the material, impregnated with a sizing containing resin and tapioca gum and having the usual protruding fibres laid down upon the body of the material, and smooth outer surfaces so that the material can be cut into wads and used directly in loading machines without further treatment.

3. As a new article of manufacture, a gun wad felt composed of punch felted animal hair in which a substantial proportion of the fibres extend axially of the material and some of which ordinarily protrude from the surface of the material, impregnated with size, and having the usual protruding fibres laid down upon the body of the material so that the material can be cut into wads and used directly in the loading machines without further treatment.

4. As a new article of manufacture, a gun wad felt composed of punch-felted animal hair in which a substantial proportion of the fibres extend axially of the material and some of which ordinarily protrude from the surface of the material impregnated with size and having non-sticking, sized surfaces.

In testimony whereof, I affix my signature.

REGINALD H. JOHNSON.