Feb. 20, 1923. 1,445,894.

O. J. LAISY.

AIRCRAFT COVERING AND METHOD OF MAKING SAME.

FILED DEC. 18, 1919.

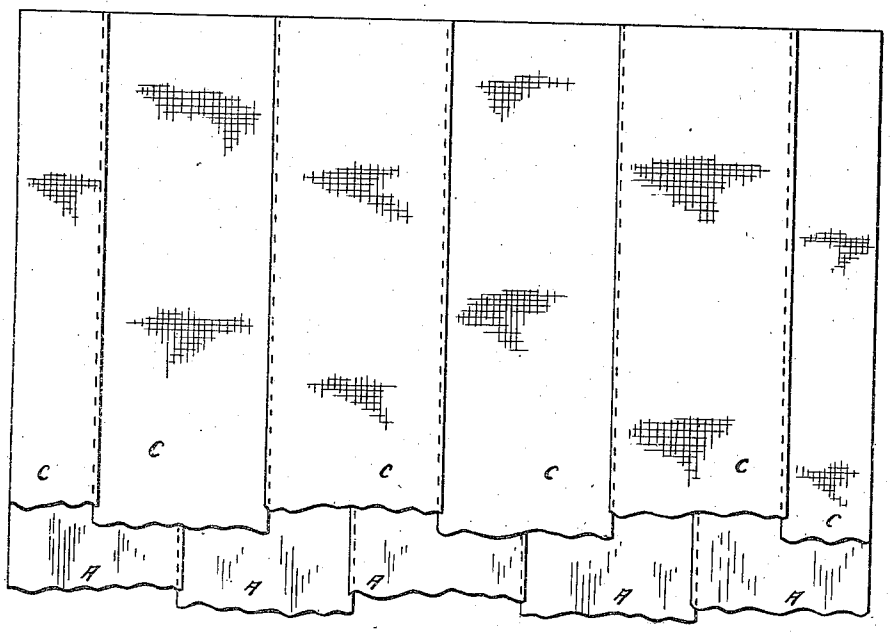


Fig-1

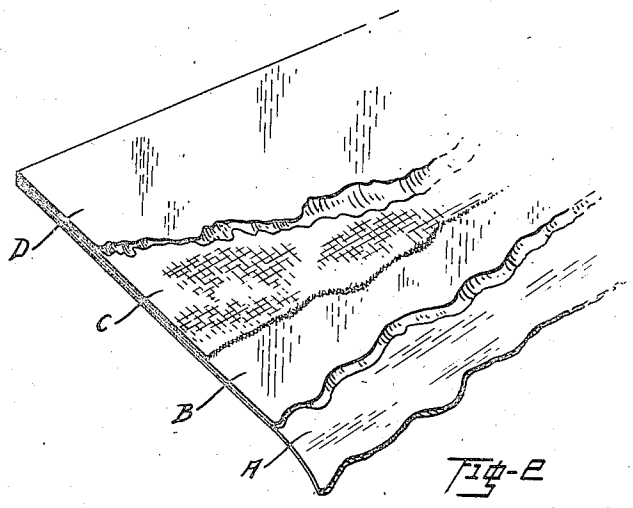


Fig-2

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UNITED STATES PATENT OFFICE.

OSCAR J. LAISY, OF CLEVELAND, OHIO.

AIRCRAFT COVERING AND METHOD OF MAKING SAME.

Application filed December 18, 1919. Serial No. 345,689.

To all whom it may concern:

Be it known that I, OSCAR J. LAISY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Aircraft Coverings and Methods of Making Same, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to an improved laminated fabric for air craft, suitable for use in either the heavier than air or the lighter than air class; and it pertains as well to the process of manufacturing said fabric.

The objects are to produce a very tough, durable, thoroughly leak-proof and inexpensive fabric that will withstand the elements to which it is subjected in use; to produce the same in continuous tubes or sheets large enough to constitute a complete gas bag, or a covering for an air craft unit; and to provide a process of manufacturing the same in a particularly convenient and expeditious manner.

These general objects, and others which will appear as this description proceeds, are attained in the laminated fabric, and through the use of the process and apparatus for making the same, illustrated in the drawings accompanying and forming a part hereof and wherein Fig. 1 represents a sheet of my improved fabric; and Fig. 2 is a perspective view of a fragment thereof considerably magnified.

The improved fabric is made up of a layer of waxed or paraffin paper, preferably such as can be obtained upon the market in rolls of suitable widths, and a layer of gauze or thin cloth, such as cheese cloth, the two layers being stuck together by the use of a suitable varnish, preferably a linseed oil varnish because of its superior elasticity. It naturally follows from the nature of the gauze or cloth that in the applying of it to the varnished surface of the paper the same becomes thoroughly filled or impregnated with the varnish; and a coating of varnish is applied to the outer surface of the cloth.

I have illustrated this construction on an enlarged scale in Fig. 2 where A indicates the waxed or paraffin paper; B the coating of varnish applied thereto; C the layer of cloth; and D the outer coating of varnish.

In the present illustration I have shown the sheet of fabric as made up of several widths of paper, the edges of the alternate strips overlapping slightly the edges of the intermediate ones; and the cloth is shown as in strips of a corresponding width and likewise arranged with the joints between adjacent strips of cloth broken, so to speak, with the joints between the strips of paper. As shown in Fig. 1 I start with a half width of cloth so that the joints between the strips of cloth will fall at about the center of the strips of paper, although it will be understood that I do not regard this as of importance any more than joints of the cloth should be staggered or offset with respect to those of the paper. In use it is intended that the waxed or paraffin paper be disposed on the inner side of the gas bag or the inner side of the airplane element on which the fabric is used. This places the cloth on the outer side where it is better able to withstand any snags than the paper would be, especially protected as it is by the heavy coating of varnish. The paper is thoroughly impervious to gas or air, and is utilized for that reason, while the cloth imparts to the fabric the required strength.

In the process of making the fabric, I first coat the paper (preferably each strip individually from edge to edge) with varnish, and I do the same with the cloth, and then I lay the cloth upon the paper as in accordance with the arrangement above explained supplying sufficient varnish to the cloth to leave an ample coating thereon. I then subject the fabricated structure to heat which has a tendency to practically amalgamate the various elements into a homogeneous mass, the individual parts or elements whereof are practically inseparable when dry. In carrying out this process I prefer to support the fabric on a perforated surface with the paper next to said surface and force heated air through the perforations of the supporting surface. The air passing through the perforations and against the paper has the tendency of preventing the paper from adhering to the surface if the wax or paraffin should become at all softened through the effects of the heat and by applying the heated air to the paper side of the structure, it is prevented from passing into the body of the structure where it would be likely to create

bubbles or air pockets in the varnish or between the paper and the cloth.

Having thus described my invention, what I claim is:—

1. A laminated fabric comprising layers of relatively thin waxed paper and gauze impregnated with a varnish to form a homogeneous mass.

2. A laminated fabric comprising layers of relatively thin waxed paper and gauze impregnated with a linseed oil varnish to form a homogeneous mass.

3. The process of forming a laminated fabric which contains the steps of coating a plurality of strips of waxed paper with a varnish, overlapping the edges of said paper to form an enlarged sheet, coating a plurality of strips of gauze with a varnish, overlapping the edges of said gauze to form an enlarged sheet, superimposing one of said sheets upon the other and applying heat thereto.

4. The process of forming a laminated fabric which contains the steps of coating a plurality of strips of paper with a varnish, overlapping the edges of said paper to form an enlarged sheet, coating a plurality of strips of gauze with a varnish, overlapping the edges of said gauze to form an enlarged sheet, and superimposing one of said sheets upon the other.

In testimony whereof, I hereunto affix my signature.

OSCAR J. LAISY.